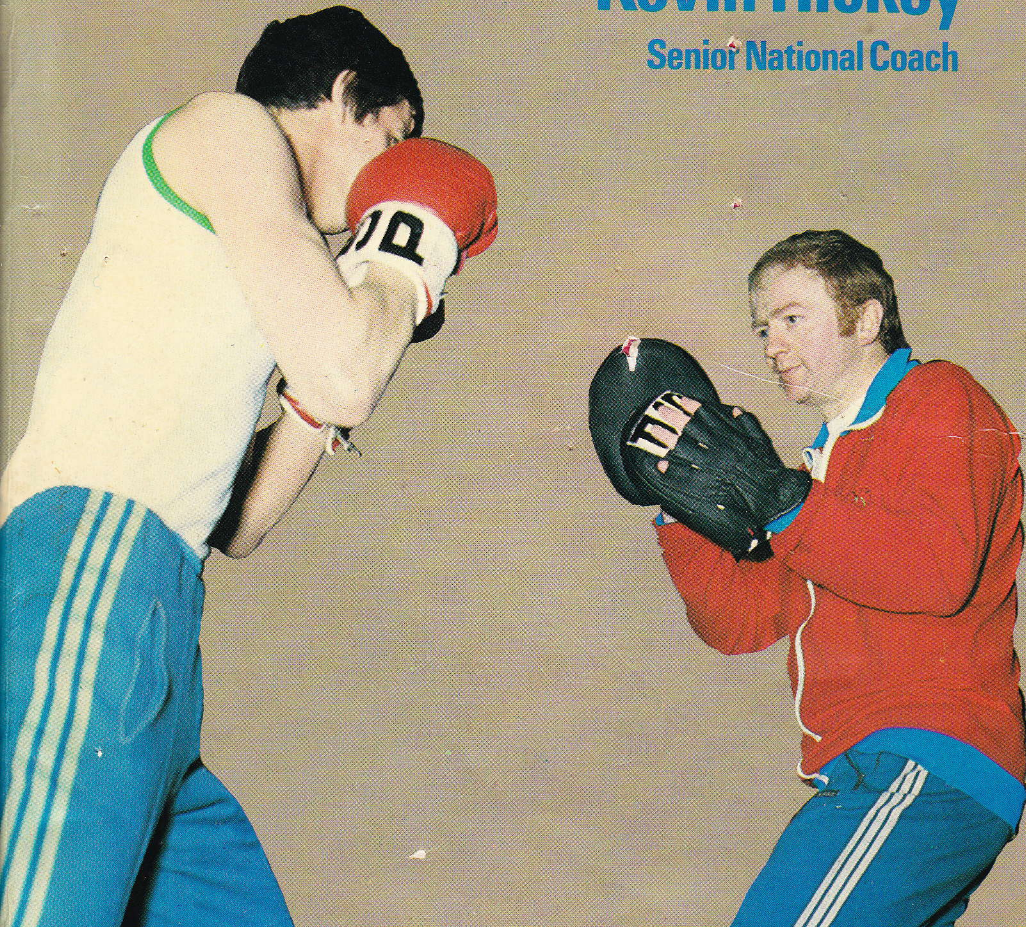
BOXING –
The Amateur Boxing Association
Coaching Manual

Kevin Hickey

Senior National Coach



The official ABA Coaching Manual provides for the reader all the most up to date thought on coaching amateur boxing. Written by the ABA National Coach, all aspects of coaching and conditioning are dealt with and from the writer's international experience a philosophy emerges which will offer a challenge to the traditionalists who believe that the amateur sport is but a diluted version of the professional code. Sections include – 'The Coach – qualities and responsibilities' and 'Planning the Programme'. Techniques are divided into Fundamental and Advanced with the emphasis on stimulating the reader to develop his own analytical process rather than copying the text.

The book is designed for the coach, boxer and sports reader with an inquisitive mind. With chapters on training, research, international approach to the sport and the psychology of competition the book is essential reading for anyone involved in boxing at whatever level.

ISBN 0 7182 1190 1

£8.95 net
(in UK only)

BOXING –
The Amateur Boxing Association Coaching Manual

BOXING –
The Amateur Boxing Association Coaching Manual

Kevin Hickey
(ABA Senior National Coach)

Kaye & Ward
London

First published by
Kaye & Ward Ltd,
21 New Street, London EC2M 4NT
1980

Copyright © Kaye & Ward Ltd, 1980

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise without the prior permission of the copyright owner.

ISBN 0 7182 1190 1

Set, printed and bound in Great Britain by
Fakenham Press Limited,
Fakenham, Norfolk.

To
SEAN
ADRIAN
and
KATE

ACKNOWLEDGEMENTS

The author would like to pay tribute to the voluntary team who made the writing of this book possible:

DR. J. L. BLONSTEIN O.B.E. (deceased) former ABA Medical Officer and Head of AIBA Medical Commission, for contributing the chapter on 'Medical Aspects'.

ALAN SANIGAR (ABA Advanced Coach) for the magnificent illustrations and general supervision of all the art work.

DAVID GASKILL (ABA Coach) for the painstaking photography involved and solving the Russian translation problem.

DAVID ORMEROD for assistance with the photography and undertaking the developing of prints.

ERIC MILLETT for his excellent art work connected with the photographs.

LYNN JINKS (Sheffield Polytechnic) for all the secretarial work.

HARRY MULLAN (Editor Boxing News) for allowing us to use many of their photographs.

SEAN HICKEY for his contribution to the diagrams.

ASSOCIATED PRESS for photographs 27 and 54.
JOE GUTTERIDGE (ABA Rules).

CONTENTS

Foreword by Harry Carpenter 11

1. The Sport of Amateur Boxing 13
2. The Art and Science of Coaching 24
3. Fundamental Boxing Techniques 38
4. Advanced Techniques 106
5. Understanding Fitness 156
6. Circuit Training 183
7. Intermittent Training 203
8. Weight Training 226
9. Competition 244
10. The Medical Aspects of Amateur Boxing 263
11. Planning the Programme 280

Appendix A Official ABA Rules 285

BOXING –
The ABA Coaching Manual

Foreword by Harry Carpenter

There are so few trustworthy boxing manuals of instruction in the English language that the publication of a new one is a landmark and when it is produced by so competent and respected a coach as Kevin Hickey, the occasion is one to be savoured. Boxing has quite enough chroniclers of its more lurid episodes, both fictional and real. The library shelves are well stocked with that sort of stuff. But reliable works of instruction are rare and so, incidentally, are the men capable of undertaking them. The readers of this book, and I imagine there will be plenty of them, must owe a debt of gratitude to Kevin Hickey.

I have known him, from my standpoint as an ageing boxing commentator and as a valued friend, for many years, which is to say that I have long admired his work with innumerable teams of amateur boxers. Hickey is one of that splendid breed of men who love their sport. He has versed himself in all its aspects, respects its practitioners and is brilliantly capable of transferring his thoughts and judgements into other men's minds and bodies.

He is, of course, the Amateur Boxing Association's senior national coach, and that august body is fortunate indeed to have him. Many an envious eye has been cast upon him in other countries and we must hope we can keep him here. His ability is appreciated internationally, through his coaching clinics all over the world and his membership of the elite European Coaching Commission, which numbers only half a dozen or so of Europe's best coaches. He has worked at two Olympic and three Commonwealth Games, as well as eight European Championships, and boxers under his guidance have come home with four Olympic, 14 Commonwealth and 21 European medals. These, of course, are merely the icing on the cake. His bread-and-butter work is done away from the public eye and has resulted in such valuable innovations as the ABA's Young England policy and the revolutionary Standards Scheme for non-competitive boxing in schools.

A boxing coach is a man entrusted with severe responsibility. The sport, as we know, is dangerous and the harm that can come to a boxer who falls into the wrong, unskilled hands, is frightening. When you read this book, with its sections devoted to the medical aspects of boxing, its place in society, the art and science of coaching and Hickey's interesting probe into the newer reaches of sports science and medicine, and the function of psychology in competition, you will soon appreciate, if you do not know it already, that it has been written by someone who knows his sport as well as anyone in Britain today. The book, therefore, is to be trusted and read with profit by those who undertake the care of boxers, and by boxers themselves.

I must not end this foreword without a salute to the artist who has provided some 150 brilliant line-drawings. He is Alan Sanigar, an ABA Advanced Coach, and is to be congratulated. The choice of nearly 80 photographs was not easy, I understand, but the result is outstanding.

Kevin Hickey has set all those who come after him a formidable standard in the business of writing boxing instruction manuals. That is no less than one would expect of him.

The author is currently engaged in preparing the Great Britain squad for the 1980 Moscow Olympics.

1

THE SPORT OF AMATEUR BOXING

HISTORICAL BACKGROUND

Boxing in the basic form of men fighting is as old as man himself. Records of the early forms of pugilism date back to 2500 BC. The Greeks had a form of boxing known as pankration. A combination of boxing and wrestling, pankration was a sport in the Olympic Games of 776 BC held in honour of Zeus. Fighters wore a belt and a type of leather glove called a cestus. There were no weight classifications and a bout was not divided into rounds. The object was for one man to bring the other to admit defeat which he would do by holding up his arm in acknowledgement.

The cestus were long thongs of soft leather worn to protect the hands. Later, the first simple boxing glove was introduced in the form of a thin material on which was fixed a pad of leather. A series of elaborate thonging held the 'glove' in place and wrapped around the wrist to end in a band of sheepskin round the forearm. The purpose of this was to allow the boxer to wipe the sweat from his forehead.

From 686 BC pugilistic fights were governed by a strict code of rules. Referees controlled proceedings and enforced rules by flogging. Skill was always the criterion, and training was undertaken with thoroughness. Ear guards and softly padded gloves called sphairai were used for sparring and punch balls were used in training. Consideration was given to different strength levels; it was recommended that the punchbags should be filled with millet for weaker men and sand for the more powerful pugilists. It is also worthwhile noting that the famous Greek wrestler Milo of Croton, five times Olympian victor, trained on what has evolved to be progressive resistance exercises. He carried a young bull around a ring each day until it was four years old; as the bull grew larger, he grew stronger.

The sport was later introduced into Rome. Skill was no longer emphasised and boxing became brutalised. Spectators showed an increasing appetite for blood. Cestus were reinforced with rings and studs of lead and iron. Professional pugilists had previously enjoyed a good living standard whilst giving pleasure to many, consequently there was no shortage of young men who wanted to become pugilists. As the demand for more bloodied circuses grew, the number of pugilists declined and eventually disappeared in the fourth century AD.

England proudly claims, and is acknowledged to be the founder of modern boxing. Although organised fist fighting must have been taking place in England before the seventeenth century, the first official record of an organised fist fight was described in the *Protestant Mercury* of 1681. It took the form of a bare knuckle fight between the Duke of Albemarle's footman and a local butcher. Bare fist fighting was usually organised under the patronage of titled persons, and betting on the outcome became a feature. The Prince Regent was the patron of Tom Cribb (1809–28).

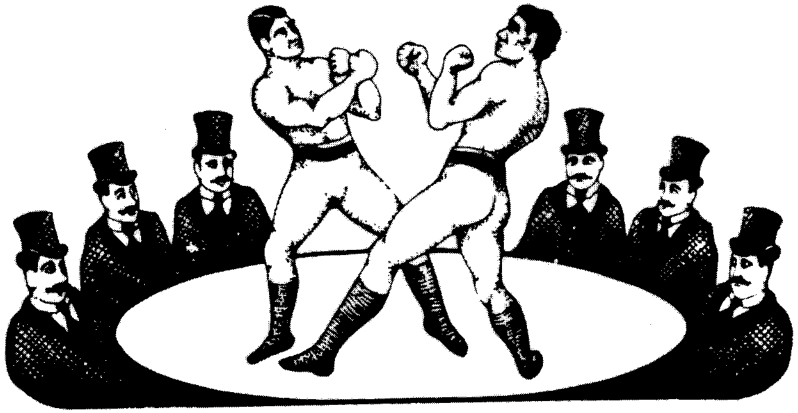
Pugilists with horse whips were employed to guard the ring from invasion and boxers displayed their 'colours' in the corners in the form of kerchiefs. Each was allowed a second and a 'bottle holder', who frequently remained in the ring during rounds. In between rounds the seconds could use either water or brandy! The term ring probably originated from the ring made in Hyde Park – formed by order of George I in 1723. It consisted of a fence of trees situated 300 yards from Grosvenor Gate and became the accepted venue for the contests. The early rings were 24 feet square with eight posts and two ropes. An outer ring surrounded the fighting area some 10 feet back. Here, seats were placed for the umpires, backers and privileged spectators.

In 1791 James Figg opened a boxing school in London's Oxford Road as a 'champion of self defence at sword, quarter staff and fists'. Although he became the first prize fighter champion of England, it was a pupil of Figg's who made a far greater contribution to the sport's development – Jack Broughton. After defeating Figg in 1732, Broughton opened his own school of boxing in 1742. He drew up a set of rules which remained in force for 100 years, and formed the basis of the London Prize Fighting Rules drawn up in 1838.

Under Broughton, excessive movement of the feet was considered cowardly. Blows behind the ear and to the pit of the stomach were encouraged. A round ended when one man went down. Then the 'downed man' was given 30 seconds to recover and 'toe the mark' – a line in the centre of the ring. Under Broughton's rules a man could be carried to the mark. Broughton is accredited with perhaps the major progress in introducing gloves into combat. In the private home in Haymarket which Broughton used as his school, mufflers were used to reduce punishment. The Duke of Cumberland (of Culloden fame) was his patron until 1750 when, following Broughton's defeat, he used his influence to have prize fighting outlawed. In fact, the legality of prize fighting was debated until 1901.

The prize fighting record books overflow with the characters of this period. Tom Jackley overcame the brand of cowardice by masterly footwork. Mendozo developed the scientific side of prize fighting to compensate for his lack of muscular strength. William Keller went to the States to develop the sport there. But the emphasis remained on hardness, strength of punch and durability. In 1878 Brighton Bill died after a contest with Owen Swift as a direct result of betting on the sport. Tom Sayers fought a savage two hours 20 minutes battle with John Heenan of the U.S.A. in 1860, as a result of which Sayers lost the use of his right arm and the American was left almost blind. The public became disgusted with the brutality and unfair practices and laws against prize fighting began to be more rigidly enforced.

The year 1846 proved to be a watershed between 'old' and 'modern' pugilism. In this year the Amateur Athletic Club was founded, mainly through the efforts of John G. Chambers (1847–87) in conjunction with the Marquis of Queensberry. A code of laws was drawn up known as the Queensberry Rules in 1866 and reviewed in 1890. There was a more rigid control of matching and conduct in the ring. Still the marathon contests took place – in 1893 110 rounds were fought in a contest lasting seven hours 19 minutes in which the result was a draw.



The first Queensberry Heavyweight Championship of the world took place in 1892 between James J. Corbett and John L. Sullivan. Corbett was one of the first pugilists to use shadow boxing and medicine ball exercises to improve strength. The weight of the gloves was a mere five ounces and the fight ended in the 22nd round with Corbett the champion. However, there remained the underlying problem of the legality of prize fighting. Police raids were quite regular on favourite venues. Look-outs were posted to give warnings of impending raids. Matters were brought to a head on 24 April 1901 when Billy Smith was killed by Jack Roberts at the National Sporting Club in Covent Garden; Roberts was tried and found 'not guilty'. Boxing was thus established as an accepted sport and no longer did the police warn boxers involved in a fight that they would be charged if their opponent was killed.

Alongside the prize fighters were the pool of eager amateurs who either identified with their professional heroes or who simply enjoyed the challenge of the ring. Prior to 1880 amateur boxing had no governing body. An Amateur Championship had been held since 1867 at three weights – lightweight, middleweight and heavyweight – under the Marquis of Queensberry Rules, which were primitive and vague. A meeting was called by R. Frost-Smith on 22 January 1880. The delegates were: T. Anderson (Captain, West London Boxing Club), B. J. Angle (Thames Rowing Club), E. T. Campbell (Honorary Secretary, Clapton Boxing Club), J. G. Chambers (Amateur Athletic Club), J. H. Douglas (London Athletic Club), R. Frost-Smith (Captain, Clapton Boxing Club), G. J. Garland (St James' Athletic Club) and R. W. Wakefield (Highbury Boxing Club).

Following a further meeting three weeks later on 25 February 1880, a general meeting of clubs interested in amateur boxing took place, and the Amateur Boxing Association was formed. They agreed upon 16 rules, the most important of which was the instruction to judges to award 'points'. So successful was this novel approach to boxing that the system was immediately copied by the professional code and formed the essential core of all boxing rules throughout the world. This rule was as follows:

> 'In all competitions the decision shall be given in favour of the competitor who displays the best style and obtains the greater number of points.
> The points shall be for "attack" – direct clean hits with the knuckles of either hand on any part of the front or sides of the head or body above the belt. When the points are otherwise equal, consideration to be given to the man who does most of the leading off.'

In contrast to the Queensberry Rules, this defined the 'target', 'attack' and 'defence'. It remains substantially the basis of the modern rules.

Contests were two rounds of three minutes and one round of four minutes. This alone had a dramatic influence on the boxers' approach to the sport. Skills had to be learned, and no longer could sheer durability, power, or strength be sufficient to grind the opponent down. In 1906 the ABA decided that boxers would be required to undergo a medical examination before competing in any championship. This was taken a stage further when it was recommended that this practice should be extended to all tournaments. The basis was laid for the conduct and safety of amateur boxing throughout the world.

THE MODERN SCENE

The inauguration of the Amateur Boxing Association was a major landmark in the development of boxing. From 1880 there was a body which was concerned purely with the amateur code. Its fundamental role was to offer a basic structure to amateur boxing throughout England, to adopt a far stricter set of rules with the resulting greater protection of its member boxers. Since these early pioneer days, boxing has evolved to take its place alongside other sports to its present position in modern society. Though the number of amateur boxers has fluctuated, the number registered has risen to over 20,000 (1978 ABA medical scheme report). This figure rises to over 40,000 active boxers with the inclusion of armed service boxers and schoolboys. It is hence justifiable to claim that boxing maintains its appeal to boys and young men. The ABA's role with respect to its members is stated in the ABA rule book:

> 'to promote and foster the spirit of amateur sportsmanship and to encourage and develop a high physical and moral standard in the youth of the nation by the educational and healthy pursuit of the national pastime of amateur boxing' (1979 ABA articles of association).

Boxing has its critics, some genuine who fail to understand what makes men want to box, and others whose reasoning is blighted by prejudice. To evaluate the case for boxing in today's society one must objectively understand what amateur boxing involves. There are approximately 900 ABA clubs throughout England filled with youngsters who want to box. Given all the alternatives that today's leisure programme offers, boxing still holds its popularity. Not that one would deny that there is a dangerous element in the sport, indeed this is one of the basic attractions to man in many sporting activities. In boxing, the danger is controlled by rigorous medical and refereeing standards, but in spite of such safeguards the hard essence of the sport must remain for boxing to claim its 'unique fight situation' appeal. For amateur boxing offers young men the opportunity to experience a real combat whilst being subject to strict rules and regulations. In preparation for this contest he is taught skills and undergoes a preparatory conditioning programme. When he steps between the ropes he knows that the aim of the contest is to hit his opponent on a limited part of his target area, an opponent matched according to age, weight and ability. Although he has been taught defences to attack he knows that he will be hit himself. Perhaps here lies the biggest safeguard alongside his physical and mental preparation; a total awareness of what is going to happen.

A differentiation with the professional code is vital. Amateur boxing is a sport; professional boxing is part of the sporting entertainment business. The weight of gloves, length of contests, with rules differing in content and interpretation, all testify to this gap. Indeed, the ABA coaching scheme is only just shaking off the traditional professional approach to technique coaching and conditioning. The professional style tends to produce bodyweight more committed to the front foot in its basic stance, slower and more deliberate foot movement, a reliance on upper body movement for evasive techniques, a lower work rate: all of which can be detrimental to the progress of the boxer as an amateur. Contrast this with the explosive speed of the top amateur, the reliance on leg power, high work rate and low percentage of in-fighting. Amateur to professional boxing is like sprinting to marathon running. Both contrast sharply in technical analysis and philosophy, so much so that one often sees top amateurs turning professional and failing to make the grade. The reverse also holds; some amateurs who fail to gain top honours achieve championship status as professionals.

An analysis of the motivating forces which drive amateur boxers makes an interesting study. Though some research has been undertaken on personality types, there is nothing conclusive at present. An empirical subjective evaluation is perhaps as near as one can get in the light of present knowledge. The 'challenge' has been mentioned, the appeal of an unknown situation where the boxer will experience his own reactions to giving and receiving a degree of pain. In this respect boxing can claim its unique appeal in what must be accepted as the most natural of all combat sports. One would also add that perhaps this links with the value of the sport as a socialising influence. A boxer knows what it is like to hurt someone and be hurt; he has no need to find out about himself outside the ring. His animal aggression is released, perhaps the chip flung from his shoulders, as the challenge of the ring is accepted and the accompanying rigorous physical training followed. It could be that he needs to prove himself to himself, to gain self-confidence. Certainly self-confidence can be acquired as can the self-control which is perhaps the basic moral quality underlying the sport.

It is the author's belief that amateur boxing should be accepted for its positive values and young men should be encouraged to participate. The 'you and you' days of national service has not really helped the cause. Nor has the inter-house boxing of the public schools when matching was largely haphazard, weight differences partially ignored and the mortal sin was committed of insufficient preparation. The aims and objectives of physical education once gave acclaim to this 'character building' value of boxing. More enlightened thinking has since questioned the worth of such presentation. ABA clubs are filled with youngsters who want to box. Given the right presentation, preparation and emphasis with no compulsion involved, boys can now learn the rudiments of a form of self-defence to the level they choose. Boys can enter competitions including national championships, or box purely as a recreation in the form of the standards scheme.

Boxing is a sport that can influence a boy's physical and moral developments for the better. Not only is a boy taught how to defend himself, but during skill and sparring practices, situations naturally occur which can be beneficial to a boy's character and outlook. Self-control, self-reliance, obedience to the rules, a sense of fair play, respect for one's fellow – are all basic requirements.

THE INTERNATIONAL SCENE

In 1920 the first international association of amateur boxing FIBA was founded chiefly through the influence of the English and French Association. Soon after the Second World War the world body of AIBA was initiated. In 1946 AIBA comprised 23 associations most of them from European countries. Since then it has grown into a worldwide association with a membership of affiliated federations from all continents. Each continent has its own governing executive committee which delegates responsibilities to various sub-committees and commissions. Hence, exists the Refereeing and Judging Commission, The Technical and Rules Commission, Medical Commission, Finance Commission and Coaching Commission. These bodies offer an opportunity for the exchange of international opinion from specialists who all share the common sport of boxing.

THE FUTURE OF AMATEUR BOXING

Since 1880 the sport has come a long way, evolving from the primitive fisticuffs to the controlled modern scene. One can only speculate as to the future, but what is certain is that the sport will continue to introduce changes which will add to its appeal. At the Montreal Olympics 370 boxers from 71 countries gave testimony to its worldwide popularity. The emphasis on safety and proper medical control are perhaps where the sport has made greatest strides, with the retention of its strong masculine identity which gives it its appeal. Future development involves the delicate balance between retaining this strong identity and safety. To introduce too many safety factors could reduce the challenge to an unacceptable level. Boxing would lose its appeal. The question is 'how far can we go?'

The ABA medical scheme established in 1970 has laid the foundation for the conduct of amateur boxing. It requires a boxer to undertake a strict medical examination before being allowed to box. Following the initial examination he is issued with a medical card which requires a record to be kept of all contests. A qualified doctor is required by ABA rules to be present at all ABA tournaments. Not only does he give each boxer a medical inspection before he boxes, he also indicates on the card the nature of any injuries sustained and the rest period enforced. So successful is the ABA medical scheme that it has become the envy of many other sports.

The referee has a vital part to play in the safety factor. His prime concern is the welfare of the boxers and the enforcement of the rules. The introduction of the standing count was a major step forward. Prior to the establishment of this, a boxer had to be down before the count commenced. Following its introduction, should a boxer appear to be dazed by a blow, the referee has the right to use the standing count without the boxer first going down. In 1974 this was taken a stage further at the AIBA Congress in Tanzania. A boxer stopped by a head blow or blows is required to take a mandatory 28 days' rest before being allowed to box again. R.S.C.(H) is thus entered by the doctor on the boxer's card.

The method of scoring in competition has always been a bone of contention. Though the definition of a scoring punch is clearly defined, a judge has to decide whether a blow has sufficient force, or body weight behind it, for it to score. This can take the objectivity out of scoring and can cause conflict of opinion. The relative movement of the boxers must determine whether on contact the blow scores. A punch thrown at speed with little force can, if timed correctly, land as the opponent advances with substantial impact. The opposite also holds; a hard punch landing on the opponent as he retreats could be a non-scoring punch. A further complication is that on impact a scoring blow must land with the knuckle part of the closed glove. Though the introduction of the white target area on the glove assists this assessment, the speed and angle of punches thrown make the judges' task more difficult. Such

elements in human error have to be reduced if scoring in amateur boxing is to be more objective. Experiments have been undertaken with calculators at major international championships, including the European ones, with sufficient success to warrant further research. Though one perhaps can never get a fully electronic scoring system, such experiments can influence the development of boxing.

Research is continuing and opinions are being exchanged on the method of scoring in boxing. It is argued that with the need to stress the art and science of boxing, successful defence should be given credit. The traditional view has been that successful defence brings its own reward in that it prevents the opponent from scoring. It has been suggested that two successful defences could equal one scoring blow and that three scoring blows should equal one point. Certainly any move which encourages the skill factor in boxing has to be encouraged, but whether this would only complicate the objectivity factor even further is perhaps equally important. To differentiate between successful defence and unsuccessful attack would be extremely difficult. Any movement of the feet, whilst appearing to cause the opponent to miss, may well be incidental to the fact that the attacker would have fallen short anyway. In support of the more positive side for defensive techniques, an analysis of performance in major international championships shows that there is a swing to offensive rather than defensive blows. Only the future will reveal the outcome of this debate, but what is certain is that the sport of amateur boxing will not stand still.

2

THE ART AND SCIENCE OF COACHING

The essential task facing all coaches is to develop each boxer to his potential. In so doing the individuality of the boxer in terms of innate ability, physique, age, temperament and level of aspiration should be considered. The coach must analyse not only the nature of the skill he is teaching but also his own method of presentation. He must understand not only the boxer he is coaching but also he must know and recognise his own weaknesses and strengths. The coach should observe and analyse the boxer's individual method and interpretation, offering the right kind of stimulus to his pupil at the appropriate time. It is vital for the coach to be clear about what he is trying to teach and equally for the boxer to understand what he is trying to achieve.

The personality of the boxer makes him a unique being. Personality includes temperament, character, interest and ideals. Though largely genetic, a boxer's personality can be influenced by his environment. As the coach plays an important part in his boxer's environment he must accept the responsibility that this involves. Standards of behaviour, personal hygiene and punctuality all reflect the acceptance of this responsiblity. The coach's reaction to the inevitable 'bad' decision and fairness in matching will influence his boxer's reaction. The coach should display equal interest in all boxers, the unco-ordinated as well as the champion to be. His first concern should be the care of the person boxing and secondly his development as a boxer.

Sensitivity, originality and flexibility are the three ingredients of a good coach. Having established the basic group discipline, a flexible programme offers involvement, purposeful activity and enjoyment for all. Each is given the opportunity to experience the crucial success, especially in the early learning stages. The coach should make each boxer aware of his interest in their progress. Short term, intermediary and long term goals are set by discussing with each individual his own level of aspiration. Many boxers set their sights too low for the ability they possess. Others set their sights too high when their goal is evaluated against their ability, as they are unaware of the level of training required to reach their particular goal. Perhaps the most taxing of all is the boxer who has the ability but just does not see boxing being so important in his life. Gradually the boxer should adjust to realistic goals which are within his sights – the danger being that they are the unfulfilled dream of the coach concerned.

Learning a Skill

Though the complexity of the skill varies the steps involved in its presentation remain the same. The art of coaching is to make the more difficult skills appear simple. Before a skill can be used in a contest situation it has to be acquired as a technique in the gymnasium. The method of introducing a technique can be as an imitation of a demonstration given by the coach, or it can emerge from the explorations of the boxer on a theme set by the coach. The first method involves the whole-part-whole form of approach; the latter is more informal and is hence more suited to schoolboy boxers rather than adults. Great experience is needed with the exploratory approach as the group works, for example on 'finding another way of using the rear hand as a defence against the jab to the head'. This encourages the younger boxers to think for themselves, gives the great satisfaction of discovery and really gets the youngsters looking at boxing as a creative art. Both approaches have their place in presenting a technique programme.

The whole-part-whole approach involves the coach demonstrating the whole technique, extracting the part of the technique which needs improving and practising it in isolation before returning it to the original whole. It must always be borne in mind that the end product is the performance of the whole technique, not the part. As simple as this may appear an over-learning of the part can isolate it from the whole. Hence, the practice would enable the boxer to demonstrate quite brilliantly the part being practised, but the final whole is no better. Even when using this approach the maxim of 'let them show you what they can do' should hold. At all times the coach tries to encourage flair and should not stereotype boxers into copying exactly the demonstration given. With whole-part-whole learning the following could be the basis of approach:

Demonstration

(*a*) The coach must motivate the group to acquire the technique. Without this desire to achieve mastery of the technique all practices will appear meaningless to the boxer. He may have to 'sell' them its importance; its relevance to the competition situation. Here his own personality and relationship with the group is crucial. Words must be few but with impact.

(*b*) The position of the group should be in an arc formation so that all can clearly see the demonstration to follow and the coach can see all the group.

(*c*) Having told the boxers the 'what they are going to do and why', he demonstrates at speed in an open and closed position the technique to be learned, making a few basic coaching points as he demonstrates. He may emphasise these coaching points with a slow motion demonstration of the technique but should finish with a demonstration at realistic speed. So the last visual impression left with the group is the technique which they are trying to acquire.

The quality of the demonstration is vital. Every coach should be able to demonstrate basic moves competently. With more advanced skills use can be made of one of the more experienced boxers who can accurately perform the skill in an orthodox manner. It will only cause confusion in the boxer's mind if the visual does not match the verbal instruction. Nor should the coach give as a demonstration his own version of the interpretation of the technique however personally effective. One should strongly encourage individuality and flair but interpretation must start from a mechanically sound orthodox technique. Never should a coach pass on blindly a faulty technique he was shown or found to be effective. It may well have suited the coach's physique, co-ordination, limb speed, etc. but still be mechanically unsound. Any deviation in expression should be from the orthodox.

Group Coaching

After the demonstration, and ensuring that the boxers understand their task, as quickly as possible the coach gets the group working. Here is when the 'looking and seeing' aspect of coaching is especially relevant. The feedback from observing the group work should shape the coach's next step. Though he should have also a pre-determined plan, points perhaps written on a card in his pocket, he must strive to be flexible and original in approach. He must decide when he should make a group coaching point; stop all the boxers working and emphasise a point that appears to be a general fault. Should this be the case, a positive approach with a clear demonstration of the advocated technique should follow. Use of voice in terms of clarity, variety of pitch, avoidance of mannerisms can by itself stimulate the group to try harder.

Individual Coaching

Individual coaching points are made as the need arises. Here lies perhaps the biggest challenge to a coach. He presents an orthodox technique which is interpreted by his boxers in the light of their individuality. However, he should not limit their style to a stereotype level – he must encourage flair. The problem is when the unorthodox happens; does the coach extract that 'part' from the 'whole' as a means of improving the technique, or does he put it down to individual interpretation?

A balance is needed which again only experience can give. Should the unorthodox approach transgress one of the fundamental principles then it must be a fault. The coach should be mindful of the level the boxer is capable of reaching and indeed his level of aspiration. If the boxer is not prepared to dedicate himself in training and skill practices, then perhaps the coach could kill his interest and enjoyment by spending too much of his boxing time in working on faults. For one must never lose sight of the enjoyment factor. However, should the boxer have the ability and have his eyes set on success at international level then the fault cannot be ignored. Although he may well get away with the 'interpretation' at the lower level of competition, at international level such flaws would be exposed. The basics must be done well. It is easier to prevent than to correct.

A problem facing the top class boxer who becomes a coach is that he will often fail to understand why a boxer cannot perform the technique demonstrated. The more natural the boxing talent the coach possesses the greater is the danger that this may happen. In time he must develop a sensitivity to this problem with his group which only experience will bring and to some extent he will need to 'learn to box' again. It will serve him well to practise the orthodox techniques upon which his interpretation is based, and he must analyse exactly what sequence of movements and coaching points are involved by a repetitive, analytical process. In such a situation a full length mirror is extremely beneficial. The coach can see for himself whether the demonstration he gives matches his verbal instruction. If it does not then only confusion can arise in the boxers' minds.

Acquisitions of Skill

The term grooving a skill implies that with successful practice, a new technique will eventually become a reflex action. Then it may be used without involving the 'thinking' part of the brain. Initially the boxer's concentration is fully occupied on performing the pattern of movement involved. With practice and feedback from his coach, the pattern of movement is grooved at a lower part of his central nervous system and becomes a reflex action. The coach's task is to develop a boxer's confidence in the new grooved technique and his perception as to 'when and where' the technique should be used.

To achieve as great a transfer as possible from the training to the competitive situation, technique practice should become as realistic as possible. Techniques should be practised at speed without loss of accuracy or quality. The maxim 'little and often' perhaps best indicates the length and frequency of technique sessions. The coach should be aware of the danger of continuing the practices beyond the point of fatigue. Then the grooved pattern of movement will break down as the muscles tire. Further practice could well interfere with the technique. Hence it is vital for all such sessions to end on a positive performance.

The learning process does not continue at a uniform rate. Even with the coach constantly and consistently providing the essential feedback, supplying the boxer with a knowledge of his performance, there will be times when there will be no apparent improvement or even a drop in performance. Such undulations are a natural phenomenon and should be accepted as part of the skill learning process. When such a 'skill plateau' occurs the coach has to ensure that his boxer has understood and accepted that this is normal. His motivation of the boxer is especially important when there is a fall in performance. It could possibly mean that the spacing of the rest intervals between the practices is inadequate, or too long. The body needs time to adjust to a new technique to consolidate what it is learning. Or it could be that the boxer has some emotional problems which detract from the quality of his practice. Perhaps the boxer has lost confidence, without which no progress will be made. Only the coach can decide the cause and remedy through his knowledge of the individual. Having recognised the symptoms, analysed the cause, his treatment must depend on the individual requirements of the boxer. However, the coach should never be over-critical. The perfect boxer does not exist. He must accept shortcomings in

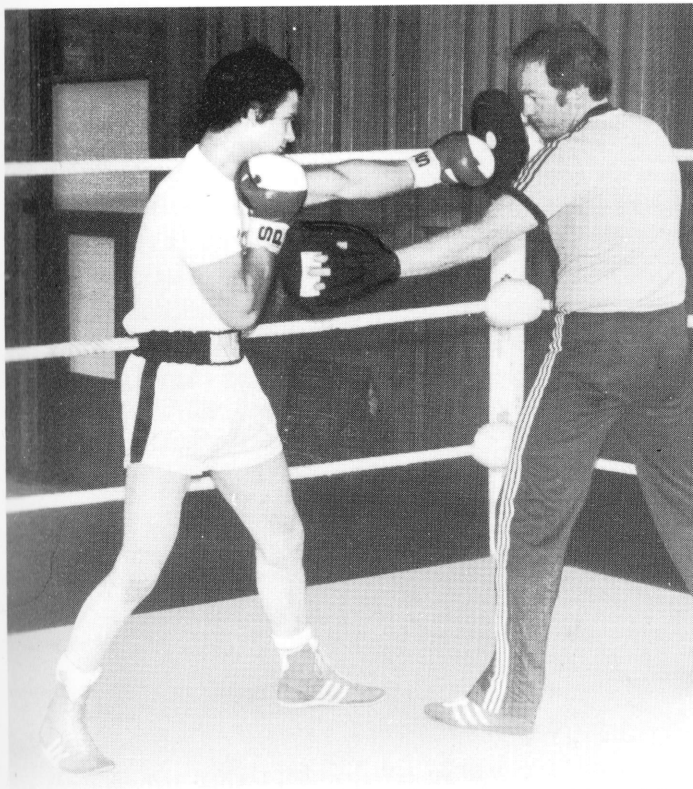
Fault Correction

There are many approaches that a coach can use to correct faults, the easiest is to prevent them from being established in the first place. But although each boxer properly motivated will endeavour to put into practice the visual and verbal instructions of the coach, faults will inevitably appear unless he is especially gifted. The boxer may well have an accurate mental picture and be provided with a good feedback on his performance by his coach, nevertheless what he actually does may well not be what he thinks he is doing, he cannot see himself. The coach has to decide in which order the faults are to be corrected, assuming that there are more than one, analyse their cause before deciding on the best method of correction. There are several methods of guidance open to the coach.

1. Visual guidance – assuming that few clubs possess VTR facilities, a mirror is an excellent substitute. The first task facing the coach is to ensure that the boxer sees for himself that he has a fault, otherwise no progress will be made. Next he must be taught the correct movement, getting used to the different feel that the movement gives.

   Muscles, joints and tendons have spindles which give a feel – a kinaesthetic sensation. The modified technique will feel kinaesthetically wrong – but the boxer is told that it is correct. The coach must augment the feedback to the boxer by perhaps showing the difference it makes to his performance as a boxer, or ideally letting him experience success as soon as possible with the modified movement.
2. Use of coaching pads. Coaching pads, or 'hook and jab' pads as they are known provide the coach with one of the best coaching aids in fault correction. By holding the pads in desired positions they can 'lock off' unwanted or incorrect movements by obstructing those movements. For

in its 'wind up' the shoulder will hit the pad. Sim
wrist of the jab should rotate just before landing
rotation causes the elbow to lift away from the s
telegraphing the punch. The right pad can be posi
that whilst aiming for the left pad, any outward m
of the elbow will hit the right pad providing in
feedback to the boxer. (photograph 1)



Photograph 1. Use of coaching pad to correct position of the non-punching hand.

3. Forced response – some of the more unco-
youngsters can benefit by being physically move

the desired movement pattern by the coach. This technique should be used with discretion and only until the basic 'feel' is achieved.

4. Use of equipment – the thoughtful coach will choose his equipment with care. Each piece should have a specific purpose and not simply be included because tradition has it that every gymnasium has one! In fact, over-use of a particular piece of equipment can negatively affect the transfer of skill to the contest situation. For example, too much time spent on the heavy bag will tend to slow the boxer's movements and possibly his speed of punch. Floor ceiling balls are an excellent aid in developing timing and lateral movement, their limitation is that they always return the target to the boxer. He is not required to use his feet in punching, so the danger is that if too much time is spent on such equipment, his footwork development will be stunted. Each piece of equipment should offer the boxer a new challenge to the skill which he is trying to master. Given a specific fault, the coach can select a piece of equipment which will help to establish the correct pattern of movement. For example, a boxer who is falling short with the second jab of a double jab combination, could well be encouraged to use a maize ball which will help his speed of punch and movement of the front foot with the second jab.

Analysis of Technique

A coach should possess the ability to analyse a boxer's technical make-up for two basic reasons:

(i) to be able to correct faults
(ii) to decide upon the skills programme which the individual's style requires.

This analytical process has to be developed by the coach. Once the basic framework has been established in his mind a clearer insight into the boxer's performance follows. An awareness that a boxer has a fault is but the start, the question is – what causes the fault? With regard to the boxer's development, a clear understanding of the nature of his individuality should influence the coach in deciding upon the style which he needs to develop. The following areas could form the basis for analysing the technical make-up of a boxer:

1. **Stance – Guard**
2. **Balance – Footwork**
3. **Punching Repertoire**
4. **Defensive Techniques**
5. **Combination Punching**
6. **Feinting – Drawing**
7. **Ringcraft**
8. **Countering**
9. **Counter-attack**
10. **Tactical Perception**

Sparring

The relationship between sparring and the competitive bout is the vital link between gymnasium preparations and the end result. Sparring is as near as the coach can get to simulating a contest situation. Ringcraft, judgement of distance, timing, tactical and perceptual development are all involved. That is not to say that the coach should regard sparring as a contest. It must be viewed from the educational standpoint, the crucial part of a boxer's technical programme. For no matter how one simulates a spar to a contest level it can never be quite the same. The psychological pressures of the competitive bout make the vital difference. Some boxers will fail to rise to these pressures whilst others will be stimulated to produce better form in competition than ever seen in sparring.

One of the major problems facing a coach is how he can encourage the boxer to use a new technique as a skill in a contest situation. The gap between being shown and practising the technique and using it in a bout is vast. Unless the boxer has exceptional natural talent, it is more than the coach can hope for to see the transfer from the training to the competitive situation as automatic. With progressive sparring the coach has a means of controlling this skill learning process. His first task is to teach the technique, then to create a variety of skill-challenging situations using equipment and sparring to assist the grooving process. Gradually that vital confidence is gained by the boxer in the use of the skill, and his coach should then encourage him to develop his awareness of cues and stimuli – the 'when' to use the skill. This development of the perceptual process should be accompanied by the coach's drive to encourage his boxer to self-analyse all aspects of his technical and psychological make-up. For the boxer should be motivated to make his own decisions, rather than relying on the coach.

Sparring can be categorised into three basic types, each being a natural progression. In order of progression they are technique sparring, conditioned sparring and open sparring.

Technique sparring is in the early skill learning stages, where the speed of action is reduced to prevent injury and the one technique is practised with each boxer in turn acting a semi-passive role. Movement is restricted and the speed becomes more realistic as confidence is acquired in the 'feel' of the new skill. Only *one* specific technique is practised, so that the predictability of the spar is closely controlled. The same approach holds for defences. Again speed of attack has to be reduced in the early stages to remove the danger of being hurt. Once the desired attitude is understood and the learner achieves a degree of success and confidence in the skill, speed should be increased.

Conditioned sparring is when the sparring is conditioned by the coach setting a theme. Speed is realistic, but the skills used are determined by the conditions set. Strict observance of the conditions is necessary. A theme could be, for example, 'defences against the jab to the head'. Boxer 'A' is conditioned by having to lead with a jab to the head, not being able to use any other form of attack. His partner must use defences against the jab according to

(i) his repertoire of defences,
(ii) his style,
(iii) his position in the ring,
(iv) the type and quality of jab used.

It is for the coach to ensure that not only are the conditions carried out fully, but that the full range of defences is used. Hence, the coach should ensure that he allows no situation to pass which could be used to improve the perception of the boxer defending, whilst at the same time coaching the quality of the jab of the attacker. The roles of defender and attacker can then be reversed.

Conditions should be set according to the age, ability, skill level and experience of the boxers. As conditioned spar links technique spar to open spar, restriction of movement is essential when catering for numbers to make the possibility of transfer from the practice to the competition situation more realistic. Though markings on the floor are helpful it may be found useful to divide the floor space into 'rings' with bamboo canes, which are easily positioned and give immediate feedback if touched. Interest can be further stimulated and the fun element enhanced, especially for schoolboys, by the introduction of point scoring games. The target could be either the body or head. Point scores are kept by the boxers which encourages the development of their sense of fair play, self-control and self-discipline. Conditions set should be simple and based upon techniques practised in technique sparring. Examples of such 'box-games' could be:

(i) The first boxer to score five hits wins. Target area is restricted to the body. Attack is with the leading hand in the form of a straight jab.
(ii) Each boxer is allowed ten attacks with the leading hand, the attack to be either by straight jab or hook. Target area is either the head or body. The winner is the boxer who lands the greater number of successful attacks.

The conditioned sparring approach encourages a boxer to develop his thinking process and the out-thinking and out-manoeuvring of his opponent. As such it has a vital part to play in every boxer's development. In terms of time available to the club coach it should predominate over open sparring by at least the ratio of four to one. That is to say that four in every five sparring sessions should be a technique or conditioned spar. This ratio will change according to the proximity of a contest.

Open sparring

The very term 'open sparring' perhaps gives the wrong impression. Whilst this type of sparring is near to a contest situation, it should still be approached on an educational footing. No conditions are imposed and a much more fluid interpretation of the boxer's reaction to the situations presented should follow. But use has to be made of the techniques practised in the technique spar and conditioned spar, otherwise a boxer will never acquire that vital confidence in a new move and although he will demonstrate its use quite beautifully in technique and conditioned sparring, will never quite 'chance his arm' when it is for real. In an open spar his perceptual ability of when and how to use the new technique should be developed. This necessitates constant supervision by the analytical coach who guides his boxers as to the opportunities missed, or occasions when the new skill was tried – but when the cue was misread. The coach should disrupt the rhythm of the spar as little as possible, but yet should not let an opportunity go by for stopping the spar and showing the boxer how he wrongly interpreted the particular situation. It is also necessary to add that the coach should not over-impose his own tactical and technical interpretation of the situation, and the boxer should be encouraged to be original – to develop his flair.

The weights of gloves used vary from 284 to 454 g (10 to 16 ozs) for seniors. Factors influencing the coach's choice of weight should include age, ability, and any discrepancy between ability and weight of the boxers sparring. The use of headguards and body protectors should reflect the safety factor and degree of realism. Though some coaches do not

advocate the use of head guards in sparring – and one would endorse this in exceptional cases – for the vast majority of boxers headguards should be worn. Not only does a correct fitting and well-constructed headguard reduce the risk of facial injury, but it can also assist the much needed confidence-building process in the new skill. Analogy to buoyancy aids in swimming perhaps holds. Their over-use in sparring *can* develop a false sense of confidence as they protect the boxer, however, bearing in mind the four-to-one ratio previously mentioned there should be little danger of this. The coach should during this training encourage a full range of punches with either hand but without the 'bite' of the 'intent to hurt'. Though the open spar may be termed a hard spar, the boxer should realise that no matter how hard the spar, it can never be as real as a contest when the punches are thrown with a real 'bite'.

3

FUNDAMENTAL BOXING TECHNIQUES

Success in most sports comes from doing the simple things well and boxing is no exception. Before deciding on the techniques to be included as 'fundamental' to boxing, as opposed to chapter four's 'advanced', it is worthwhile reflecting on the essential factors involved in the coach's approach to his boxers. No two boxers are identical, each boxer must be approached as a unique being. One of the major problems facing the coach is to balance the individuality of the boxer with the need for him to conform to certain principles. Principles which the laws of physics endorse and about which there can be no debate. There has to be a compromise between allowing each boxer to interpret the skill which the coach is trying to present and not contradicting the principles involved. One should never see a stereotyped approach in the 'pouring of a boxer into a mould', nor a boxer being allowed to 'do his own thing', whilst flagrantly contradicting the mechanics involved.

Stance – Guard

The aim of the game is to strike one's opponent without being struck oneself. Having reiterated this vital statement, it must be put into practice when deciding on the stance and guard to suit the individual boxer. Perhaps the first priority is to decide on the style which will be the most effective for the boxer. The coach's task is to help each of his boxers to adopt a stance-guard which will afford him maximum protection for his target area with gloves held in position to attack, defend, counter, counter-attack with minimum movement at maximum speed (figure 1). The body-type and physique of the boxer should be a strong influence. Photograph 2 illustrates this point. Both boxers are the same weight, but have contrasting styles (photograph 3).

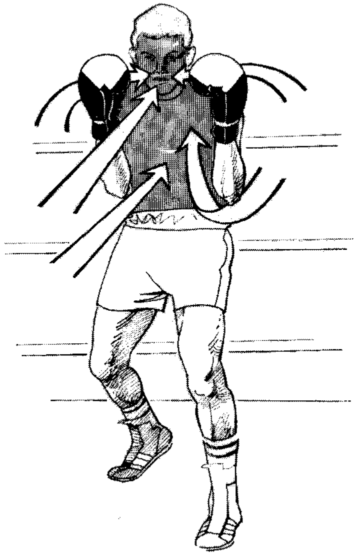
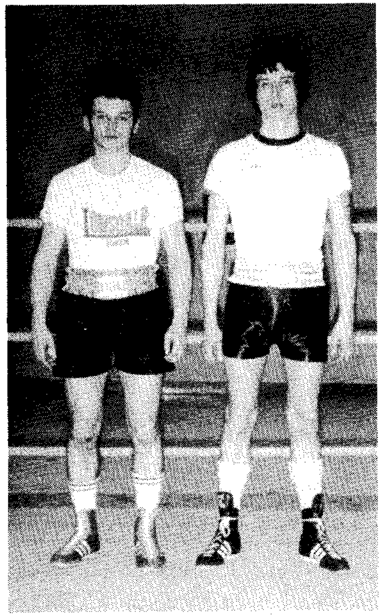
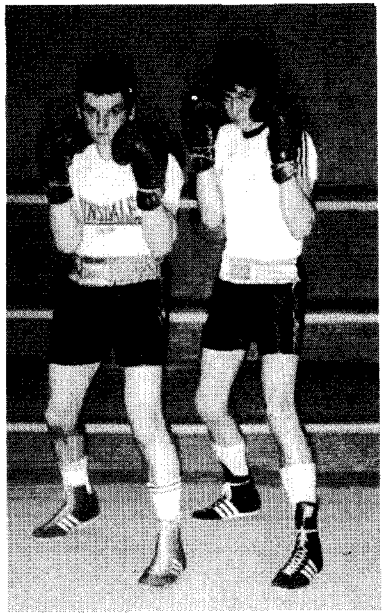


Figure 1.
A. Shaded area shows target area.
B. White area on gloves shows scoring knuckle part.
C. Arrows depict possible lines of attack.

Boxers of the same weight category showing how their physical differences influence their style.



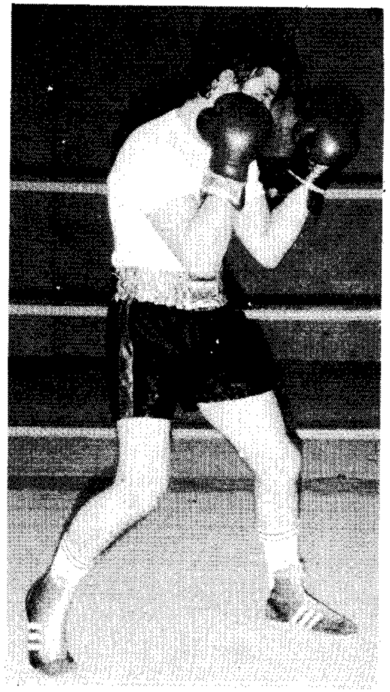
Photograph 2.



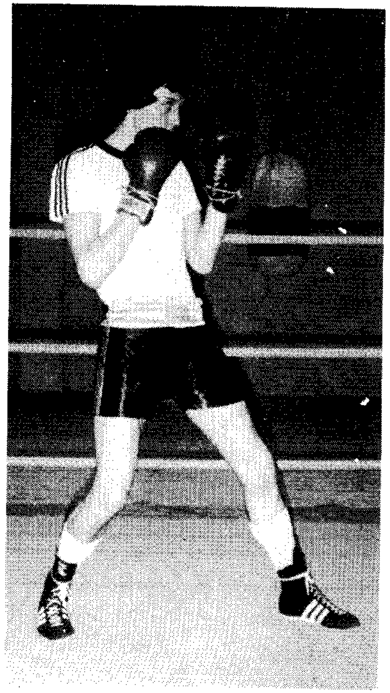
Photograph 3.

The shorter boxer will need to develop the style of a counter-puncher. Both hands will be almost equally important in his style. It follows that he will stand squarer to his opponent with body weight towards the front foot. The taller, thinner body type should maximise the advantages his height and reach give him. His leading hand will be his main scoring weapon. Photographs 4 and 5 show how he will therefore stand more sideways, with his body weight farther away from the front foot. The essential role of the leading foot is as the 'range finder' (figure 2). When the front foot is in the distance, the power comes primarily from the rear leg – the 'power driver' (figure 3).

Half of this chapter could be devoted to the importance of the position of the body weight in relation to the feet. The shorter the boxer the more he will stand with his body weight towards the front foot – but **never over it**. Should he adopt the latter stance, it follows that as soon as he moves into striking distance, i.e. when his range finder slides forward, his target area is in his opponent's striking distance (figure 4).



Photograph 4. Shorter boxer, counter puncher; body weight towards front foot.



Photograph 5. Tall 'jab and move' boxer; body weight on back foot.

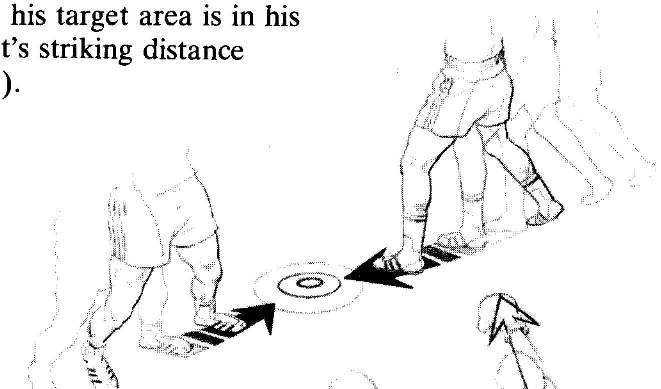


Figure 2. Range finder.

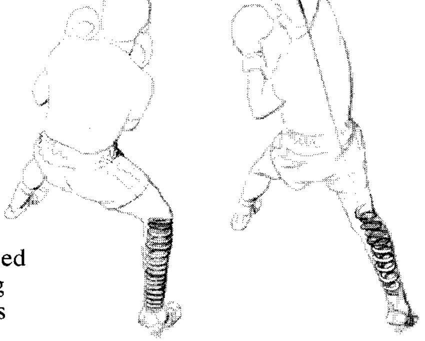


Figure 3. Power driver.

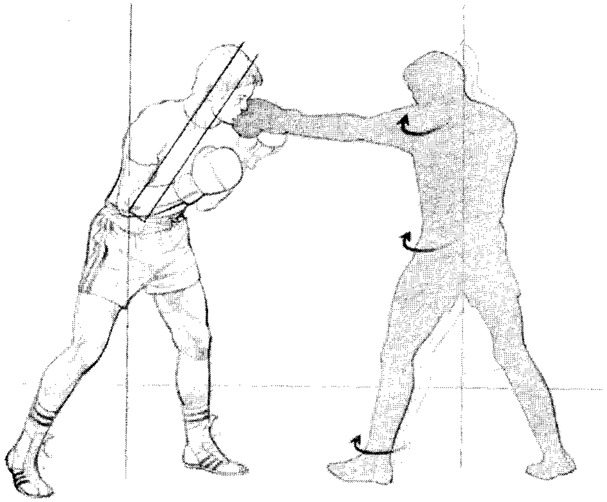
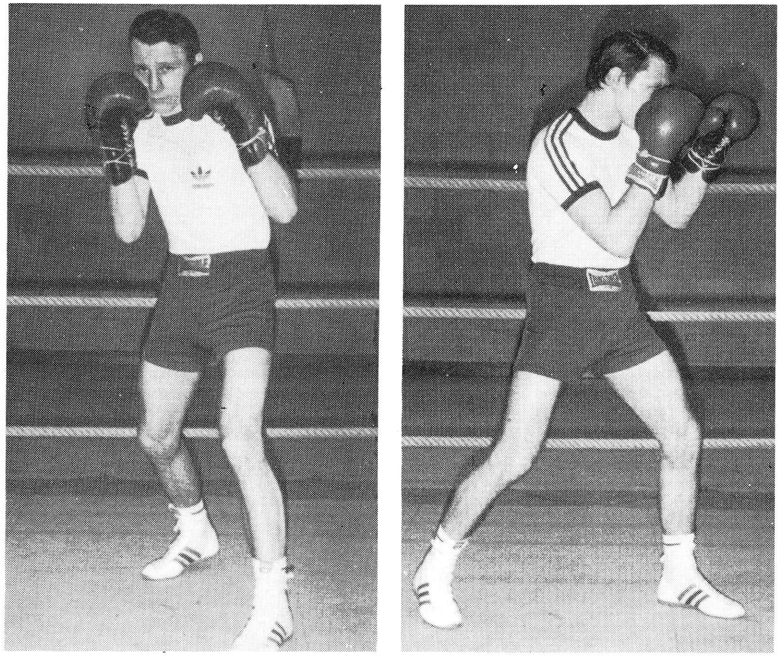


Figure 4. Limitation of committed body weight style. When striking distance is reached, own target is within opponent's attack.

Body-type should not be the only factor to be taken into account when deciding on the optimum stance for the individual, the personality should be an influence. The more aggressive temperament could well find the demands of a counter-punching style too restricting. Individuals have varying inherent speed of movement and power capacity. A coach cannot improve pure reaction time. These become crucial factors when considering the distance from the boxer's target area to his opponent. The closer it is, the less time he will have to respond to attack. Though one would strongly distinguish between boxing intelligence and intelligence in an academic sense, it is apparent that the more intelligent the boxer the more readily he can develop the arts of boxing. Sophisticated techniques involved in feinting and drawing, choice of attacks are more readily acquired and more easily transferred from the 'gym' to the 'contest' situation.

Photographs 6 and 7 show an orthodox interpretation of stance and guard which cover the features discussed and the following coaching points, which are equally valid for southpaw boxers.

(i) Feet should be approximately shoulder width apart, depending upon the boxer's physique, style and length of leg.
(ii) Body weight is balanced between front and rear legs; whether tending towards the back leg or mid-way between, again depends upon the individual's style.
(iii) The sole of the front foot remains in contact with the floor to allow maximum range of pivot whilst punching, with the front knee slightly flexed to assist the leg in its role of range finder.
(iv) The back heel remains off the canvas at *all times* to facilitate speed of movement, supporting a flexed knee which provides explosive push in its role of power driver.
(v) The front foot points at an angle of approximately 45 degrees away from the opponent with the rear foot offset and turned farther away, to allow a sideways stance with easy transfer of body weight.



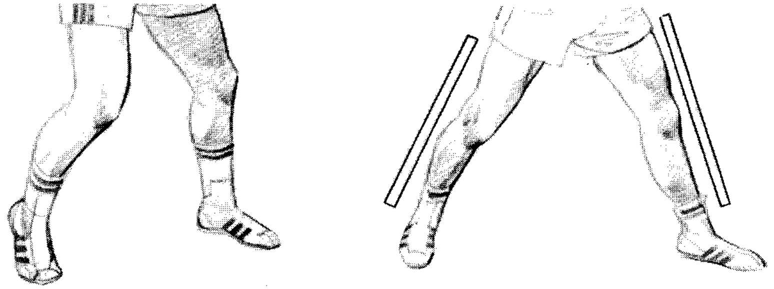
Photograph 6. Photograph 7.

The orthodox stance and guard.

(vi) A closing of the target area is made possible by the trunk turning sideways in a natural alignment with the feet.
(vii) Hands are held in a relaxed, high position, with elbows close to the ribs guarding the body; gloves guarding the face.
(viii) Gloves are held loosely clenched, or slightly open, as the individual boxer prefers.
(ix) The chin remains close to the chest allowing protection from the leading shoulder.

A word must be said about whether a boy should be automatically considered as an orthodox boxer if he is right handed and a southpaw if left handed. Some boys feel more comfortable when contradicting what one would consider 'normal'. Some coaches encourage boxers to be southpaw regardless of performance. What generally follows is a southpaw who is virtually one-handed. He has not got the control in his rear hand, the power which it should have – nor the confidence to use it. The boxer's development is stunted. One would reasonably expect a right-sided person to become an orthodox boxer and a left-sided person to become a southpaw, even if they 'feel better' standing the other way round. Having tried to adopt the suggested stance, time will be needed for it to feel comfortable. But the individual must be allowed to make the final choice.

The position of the feet is vitally important. Selection of the 'right' distance apart depends on the factors mentioned. Terms such as 'a comfortable stride' are appropriate, though the boxer might well feel himself comfortable on too narrow or too wide a base. In such cases he should be educated to the need to either widen or shorten his base accordingly. The coach should explain the limitations that each base brings (figure 5).



Base too narrow, hence –
1. Reduction in degree of pivot.
2. Loss of power in rear hand.
3. Difficulty in lay back.
4. Target too close to opponent.

Figure 5.

Base too wide, hence –
1. Difficulty in moving at speed.
2. Loss of effective power in rear leg.
3. Increase of distance for rear hand.
4. Sideways transfer of weight.

Footwork – Balance

Having established the individual's stance and guard by a process of analysis, judgement and experimentation, it is necessary to consider what amateur boxing is all about – movement. The boxer's footwork should enable him to slide into striking position without loss of balance or speed. At all times he should be in a position to use either hand, or both hands, without over-commitment. 'The punch follows the foot' is the golden rule. Correct punching depends on the ability to transfer body weight forward or sideways. The feet enable the boxer to slip inside, duck, roll under, slip outside the opponent's attack without loss of balance.

Whatever the style of the boxer, he will need to move in all directions at varying speeds, and demonstrate the techniques involved in moving forwards, backwards, left and right. The techniques can be summarised as follows:

1. All basic footwork should be short sliding movements.
2. Moving forwards the front foot moves first with the rear foot following. The momentum comes from the push off the back leg (figure 6).

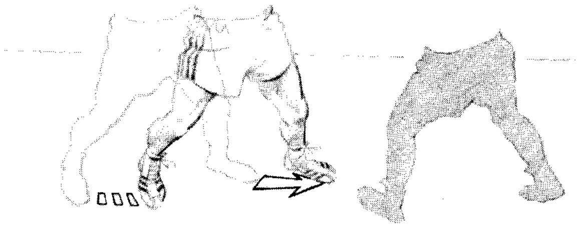


Figure 6. Moving forwards – front foot leads.

3. Moving backwards the push comes from the front leg with the rear leg moving first and the front leg sliding the same distance (figure 7).

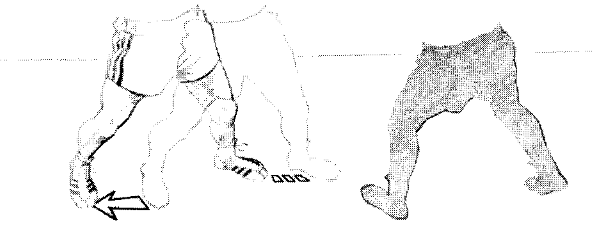


Figure 7. Moving backwards – rear foot leads.

4. Moving to the left, for both orthodox and southpaws, the left foot slides first with the front foot following to return the boxer to the balanced 'on guard' position (figure 8).

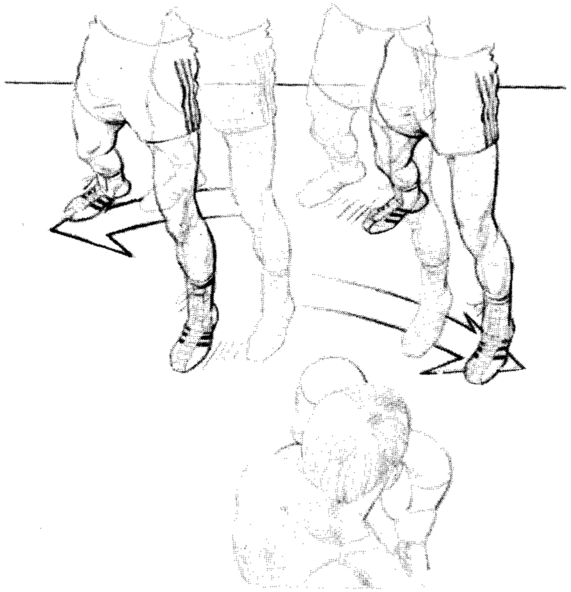


Figure 8. Moving left and moving right.

5. Moving to the right, the right foot leads – again a few inches at a time, with the left foot sliding quickly into position.

To reiterate, the vital function of the front leg is to be the **range finder**. Whether a boxer is in distance depends on the proximity of the front foot in relation to the target area of his opponent. The rear leg is the provider of **power**. But only whilst correct balance is maintained by the boxer can these respective roles be fulfilled.

Mechanics of Punching

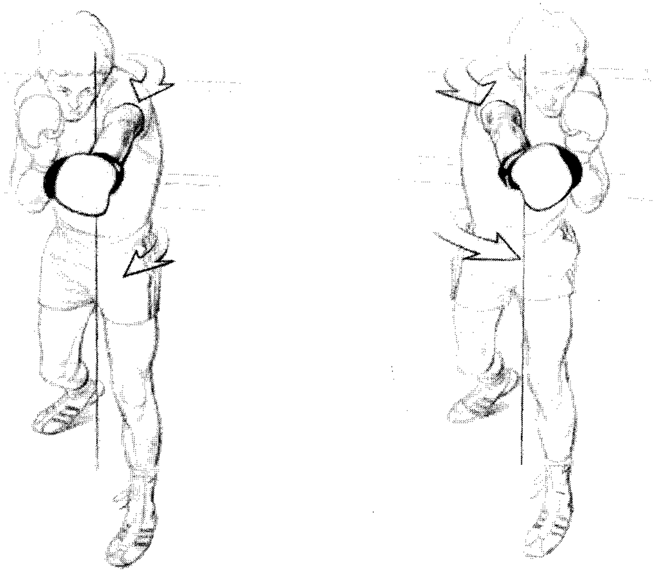
In all punching techniques there are underlying principles which should be understood before the coach turns his attention to specific punches. These principles will establish a basis on which the coach can interpret each boxer's correctness of punching. A minor contradiction of the mechanical principles involved will detract from a boxer's quality of punching. A major contradiction can produce a fault which will prevent a boxer from achieving the degree of success which his innate ability warrants. This is especially so in the early stages of a boxer's learning process.

The coach has to balance the individuality of each boxer against the correctness of the technique being coached. A contradiction in the mechanical principles involved could be ignored to a certain extent if the end result is effective. However, many boxers are allowed to form bad habits in their style by a coach who is either not aware of the faults or has not 'sold' his charge the need to practise a mechanically sound technique. The question will always remain in the case of such individuals how much better they *might* have been.

The coach must decide whether the boxer's physique, coordination, flexibility, allow him to fulfill all the principles involved. Some boxers will never have a textbook style. Their physical limitations only allow them to interpret the skill to be learned in an 'unorthodox' way. The coach should be as objective as possible in determining the degree of improvement possible, given all the limitations that the boxer presents in terms of ability, personality and the length of time that he is prepared to practise.

The fundamental principles of punching are summarised as follows:

1. The punch follows the feet; if the feet are wrongly positioned the punch will be ineffective.
2. Power comes from the twisting of the trunk around an imaginary axis (figures 9, 10).
3. The arms transmit the force which comes from the body and hence are relaxed until the last few inches.
4. In straight punching the fist rotates before contact, to finish with palm facing the floor.
5. The left side is kept firm when punching with the right hand and vice-versa (figure 11).



Figures 9 and 10. Trunk rotation in punching around an imaginary axis.

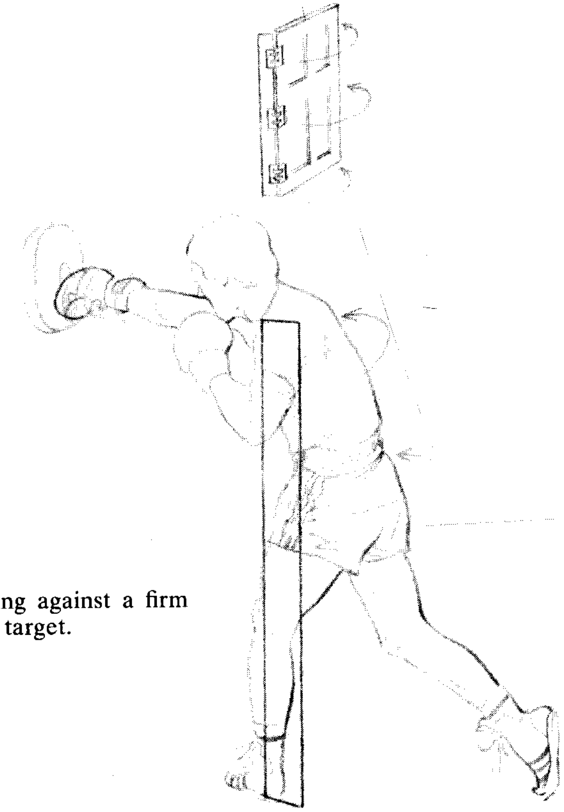


Figure 11. Punching against a firm side – through the target.

6. The punching arm returns along the same path or plane after landing, to its 'on-guard' position.
7. The position of the non-punching hand should be such that it is in a position to defend whilst the attack scores, and can be effectively used to continue the attack.
8. Each punch should be thrown with acceleration over the last few inches – through the target.

Breathing whilst Punching

It is vital that coaches teach correct breathing from the first punch taught. The timing of the breathing aids speed of punch, power, timing, economy of effort and should be considered as important as the mechanics of punching. The timing of the breathing out should be synchronised with the delivery of the punch. Whether the expelled air comes from the nasal passage or mouth, or perhaps both, can be of individual preference. It should be remembered that the noise made by the air being expelled should not be considered excessive. The referee is entitled to warn a boxer if he thinks that the noise is used to intimidate the opponent, or confuse the judges.

Controlled explosive breathing will not only aid the quality of the punch but it will also help the absorption of shock from a counter by increasing the muscle tone of the skeletal muscle, especially the stomach wall and muscle sheath supporting the neck. Connected with this absorption of shock from a counter attack, is the degree of relaxation to be encouraged. The lower jaw should be kept in firm contact with the upper jaw. The impact from a punch can then be taken by a firm unit. In connection with this latter point a comfortable, effective gum shield is an absolute must.

Scoring in Amateur Boxing

Having established a set of conditions on which to present the various techniques, the general philosophy of scoring in amateur boxing should be considered. The club coach is concerned with preparing his boxers for competition. The essence of competition is to aim to win. As the winner of the contest is basically the boxer who lands the greatest number of scoring blows, the ABA rule on 'what is a scoring punch' needs careful examination. The rules of the Amateur Boxing Association state that scoring blows are 'Blows struck with the knuckle part of the closed glove of either hand on the front or sides of the head or body above the belt. There must be force behind the blow.'

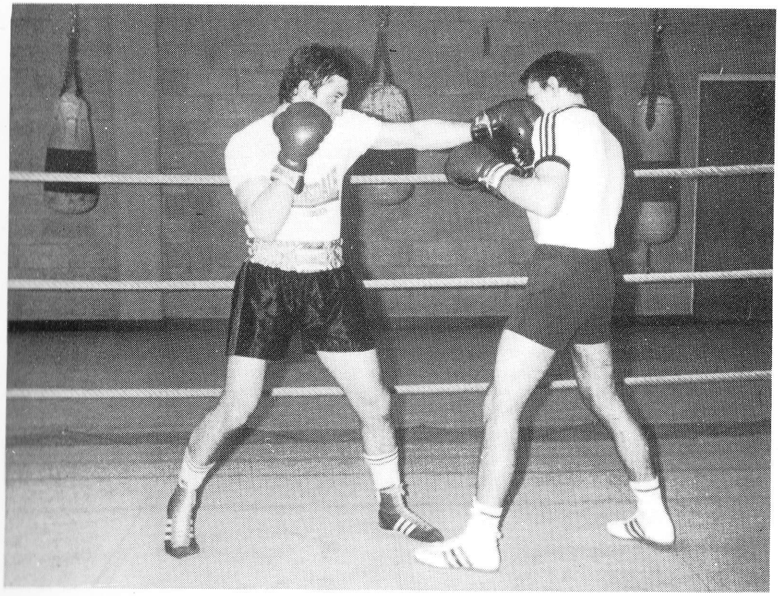
There are four aspects of punching to be considered:

(i) speed,
(ii) accuracy,
(iii) force,
(iv) direction.

To forsake speed for accuracy will produce problems as the very nature of the sport depends upon split second timing; taking advantage of a momentary lapse in the opponent's defence. Accuracy is needed to ensure that the punches land in the designated spot on the target area. An evaluation of 'force' is much more complex. What force constitutes a scoring hit? Force on impact is the key. The question then involves the relative direction and movement of the two boxers as the punch lands. Hence, an apparently hard punch could become a 'non-scoring tap' on landing as the receiver lays back (p. 58) and so is moving away from the punch. The opposite also holds good. A punch thrown at speed with minimum force which lands as the opponent moves forward can become a powerful hit. The development of this thinking is continued in the advanced techniques section.

The Straight Jab to the Head (photograph 8)

It would be difficult to overstate the need for every boxer to develop the straight jab with his leading hand. Whatever the body type, or style, the jab must be the main punch. The tall, sideways standing, upright boxer should see the jab as his main aid to winning contests, using his height and reach to score points or keep his opponent off balance. The shorter, more compact boxer has to stand squarer on to use both hands, but the jab will be his means of making the openings for his counters and combinations to follow. Whilst there are variations in the type of jab each would use as his first preference, the fundamentals involved are the same. Chapter four deals with these variations in more detail. Figure 12 shows the major coaching points involved:



Photograph 8. Straight jab to the head.

1. From the on guard position the relaxed leading hand is snapped away from the side with a quarter turn of the shoulder.
2. The arm is straightened and the fist rotated with the thumb turned inwards, so that the palm finishes facing the floor.
3. Body weight is transferred forward by the front foot sliding into distance so that the body can pivot over the 'range finder'.
4. Power comes from the quarter turn of the body and the push off the back foot.
5. The non-punching hand is held in a relaxed guarding position and the punching arm returns along the same path.

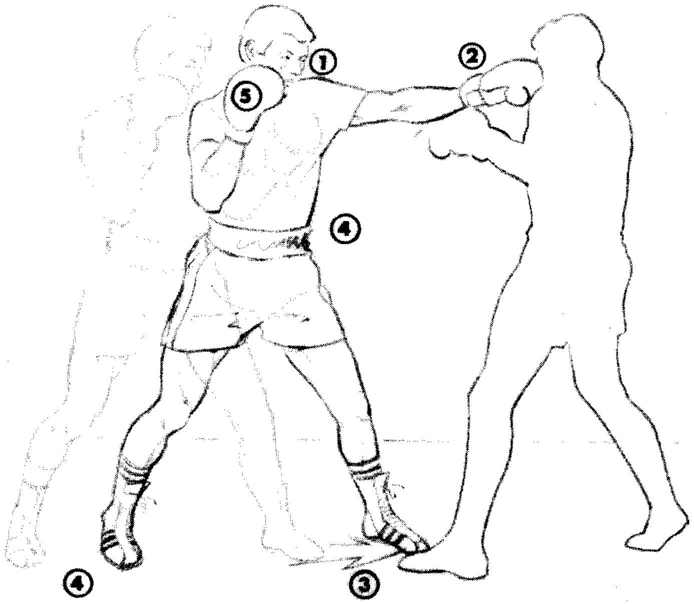


Figure 12. Coaching points straight jab.

Defences against the Jab to the Head (to orthodox boxer)

'For every move there is a counter.' In his presentation of a skills programme a coach must accept the essence of this statement. Attack is important, but so is defence. Defensive techniques can both nullify the opponent's attack and put the defender into a position to counter. Every boxer's technique education should include as wide a range of defensive techniques as possible. The taller boxers will at some stage face the problem of getting inside a longer reach. The shorter boxer will at some time need to deal with a more able counter-puncher. Having tasted a full repertoire of defensive skills, the coach can then help the boxer to select and practise those techniques which particularly suit his style.

Blocking (figure 13)

Whilst there is no precise order of preference in the selection of defensive techniques, the natural movement of blocking should put it high on the list.

1. The defender moves his right hand in the line of the jab, catching it with fully or partly open glove.
2. With the heavier jab, the danger of the glove being knocked back into the face can be offset by a slight movement away once the attacking lead contacts the palm. This will also help to 'open-up' the attacker for a counter.
3. A suitable coaching sequence could be, 'Wait – Don't reach! Move in line – catch and push!'
4. The left hand should be held ready to counter.

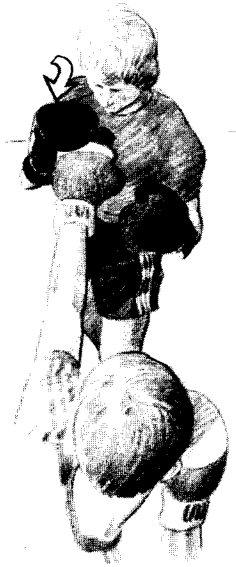


Figure 13. Blocking.

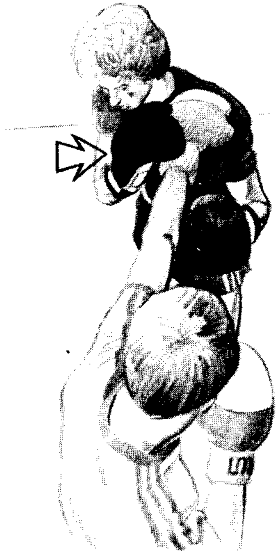


Figure 14. Outside parry.

Outside parry (figure 14)

The term 'outside parry' is used to show that the defender is moving outside the attack, though using the inside of his right glove to gain that position. It should feature as a vital technique especially in the early days of a boxer's technique education, as it is a natural movement which will help develop confidence in a boxer's ability to stay in range of his opponent's attack without being caught.

1. The attacking jab is caught just before impact. Movement is confined to the wrist and forearm and should be minimal.
2. The inside of the right glove contacts the glove in a deflecting movement. The amount of control over the jab will depend on the area of contact made by the parrying glove, which will in turn depend on the degree of relaxation in the fist.
3. Contact by the defender's palm with the attacker's wrist – as opposed to the glove – will ensure that the attacker is more committed to an off balance position. Ideally, the lead should be directed over the left shoulder.
4. The left glove is held in a guarding position ready to counter to head or body.

Inside parry (figure 15)

With the inside parry the defender is moving inside the attacking jab. The timing of this defensive technique requires special attention. Its use depends upon the length of reach of the boxer, his co-ordination, and the strength of the attacking jab.

1. The attacking jab is deflected by the right glove, either on the back or by the palm which is turned outwards. Which is preferred can be discovered by experimenting.
2. Movement should be minimal with the defensive action taking place just prior to contact.
3. The front foot can assist the movement by sliding to the left. This would be especially important for a shorter boxer in order to counter.
4. As the technique moves the defender towards the attacker's right, extreme care must be taken with the position of the guarding left hand.

Push away (figure 16)

The use of the feet as a form of defence should be introduced as soon as possible. It is worthwhile remembering that some Eastern European countries concentrate purely on footwork to evade all attacks. A beginner will find the technique a natural defence – 'to get out of the way'. The coach must ensure that the push away is a controlled movement, covering a minimal distance, with balance being maintained at all times.

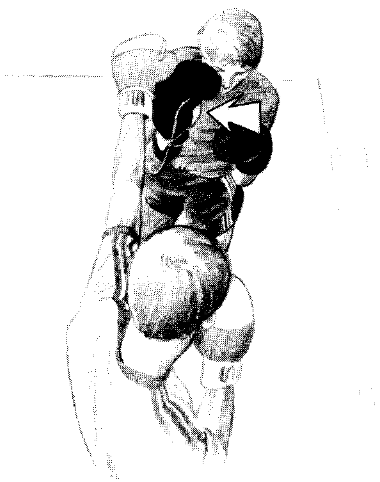
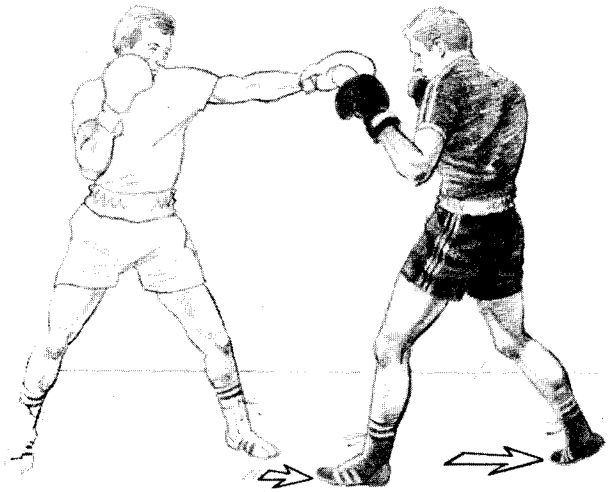


Figure 15. Inside parry.

Figure 16. Push away.



1. As the lead approaches, the front leg drives the body backwards with the back foot leading.
2. The upper body, though relaxed, is in an on-guard position ready to counter.
3. Having explosively driven the body just out of distance, the front foot slides at speed to regain its balanced on-guard position.

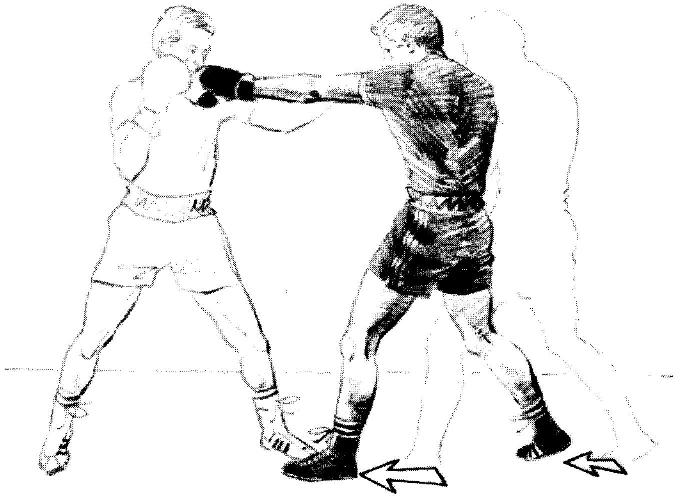


Figure 17. Push back.

Once the essential feel of the movement has been acquired, the development is to push *back* into striking distance. The timing needed will require a great deal of practice (figure 17).

'Watch the lead – push away – push back.' The drive for the push back will come from the back leg, with the front foot leading.

Slipping

Slipping is an art which affords the defender the opportunity to use either hand in countering, as neither is used in the defence. Much practice will be needed to groove the sequence of movement involved, to develop the sense of timing and degree of anticipation required – and to promote the necessary confidence. The aim is to move the head out of the line of the opponent's punch with a minimum of movement.

Slipping outside (figure 18)

1. Body weight moves on to the right foot. Balance must not be disturbed.
2. A bend of the right leg and/or slight dip of the right shoulder will allow the jab to slip over the left shoulder.

3. The guard is kept up ready to counter.

Slipping inside (figure 19)

As with all movements which take the boxer inside the opponent's defence, caution is needed not to move into the line of fire of the right hand. This danger can be overcome by 'stopping' the opponent's right by placing the defender's left glove on the attacker's right. Then the counter to be thrown would be with the right hand. Speed of evasive action, counter and push back are vital.

1. Body weight moves on to the left foot.
2. A slight turn forward of the right shoulder with a dip at the waist and/or left leg, will slip the jab over the right shoulder.
3. The high guard is kept relaxed ready to use either hand in a counter.

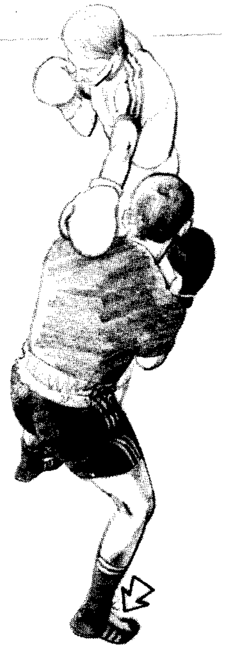


Figure 18. Slipping outside.

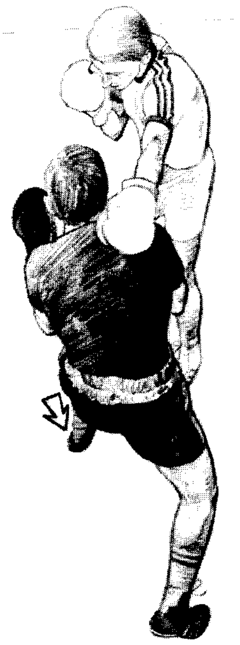


Figure 19. Slipping inside.

Lay back (figure 20)

The particular advantage of the lay back is that it takes the whole target area out of the range of attack – with no movement of feet. Any counter can then be thrown immediately without any adjustment of feet being necessary. Balance must be maintained throughout. The 'end' position after the lay back should leave the defender still in a position to move at speed in any direction.

1. Body weight shifts towards the back leg.
2. The target area is taken out of the range of the attacking jab by:
   (i) The trunk leaning backwards at the waist.
   (ii) The rear leg increasing the degree of flexion at the knee.
3. Countering from the 'spring back' position can be with either hand.

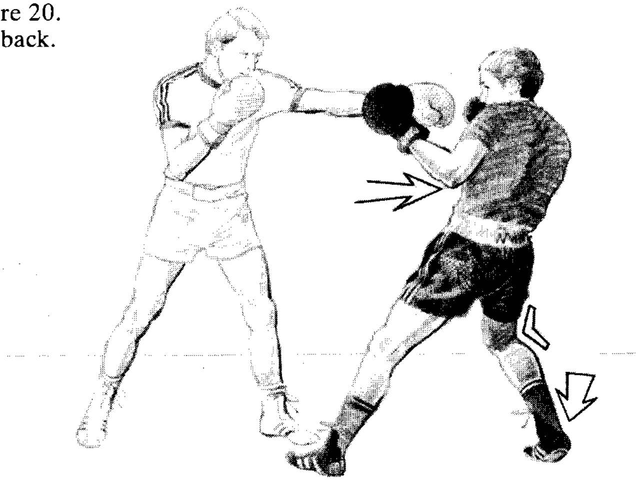


Figure 20.
Lay back.

Ducking (figure 21)

Ducking allows the defender to go under an attack to the head, thereby opening up the body as a target for the counter. Should the counter be a two-punch switch from body to head, added power will come from the 'recoil' effect from the spring back of the legs. Great care must be taken with the position of the head. Not only must it not go below the opponent's waist – it must never be deemed by the referee to be in a dangerous position.

The coach should always insist that the technique of ducking is practised with both gloves held in front of the face and with eyes on the opponent's target area.

1. The defender dips under the attacking jab by bending forward at the waist and flexing the knees.
2. Eyes must be fixed on the opponent even as the attack passes over the defender's head.
3. Gloves should be held 'extra' high, with elbows guarding the body.
4. Countering can be with either hand.

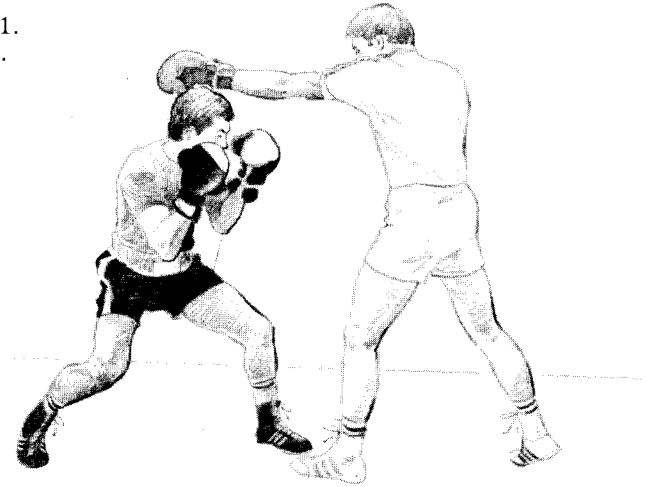


Figure 21.
Ducking.

Rolling (figure 22)

Having established a degree of competence in slipping, the natural progression is to rolling. Confidence, relaxation and speed are important, but rolling is essentially a test of balance. Body weight is transferred in a rhythmic sway controlled throughout by the legs.

Rolling under the attacking jab can be either from inside-to-outside or outside-to-inside. Inside-to-outside affords the advantage of taking the defender outside the opponent's line of attack, though both can be used. All the points already made concerning slipping and ducking are relevant, for rolling is essentially a combination of both techniques in a flowing rhythmic movement.

Inside-to-outside

1. Slip inside the jab – duck – come up outside ready to counter.
2. Body weight is transferred – left leg (slip inside), right leg (outside position).

Outside-to-inside

The coaching sequence could be:
'Steady – slip outside – roll under – up inside.'

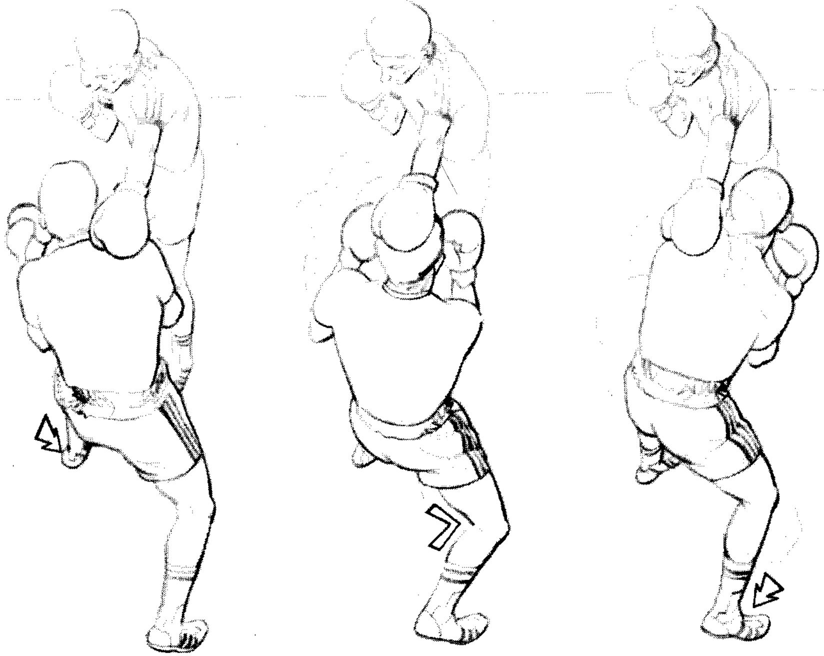


Figure 22. Rolling.

Step across (figure 23)

A boxer needs to develop the ability to change direction quickly. Not only should he practise moving in both directions – pushing off either foot – but he should be strongly encouraged to use his feet as a defence and to move outside his opponent's line of attack. The 'step across' covers both points. The more committed is the attacker with the jab, the more effective the technique.

1. The defender steps to the right and slightly forward with his rear leg.
2. The opponent's jab passes over his left shoulder.
3. Body weight is transferred on to the right leg ready for the straight right counter.

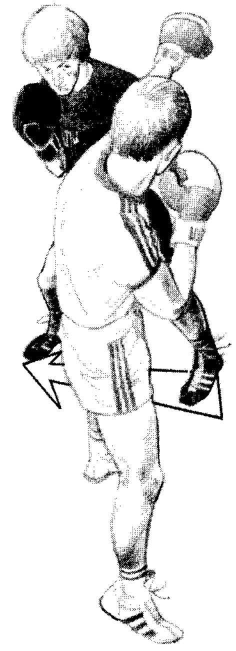


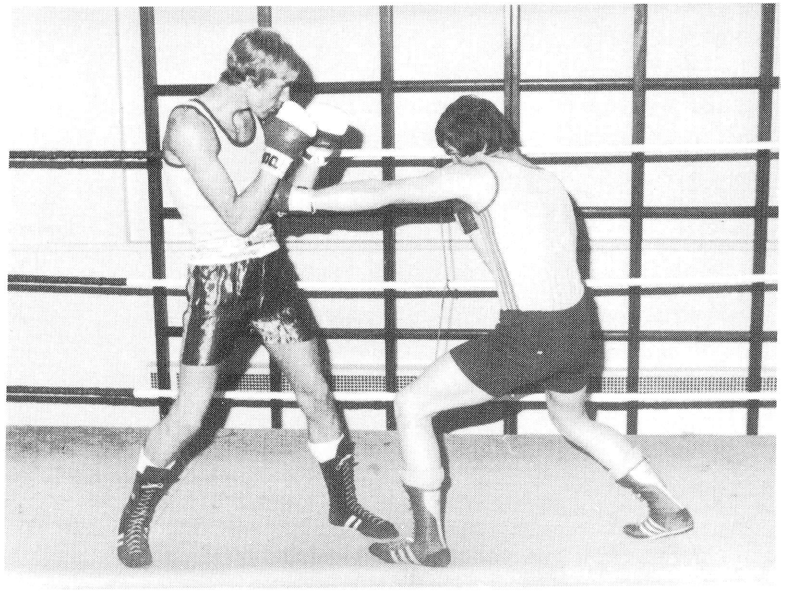
Figure 23. Step across.

The Straight Jab to the Body (photograph 9)

A general criticism of boxers would be their reluctance to score to the body. The size of the target area which they ignore should cause some concern. As the opponent has less time to react to an attack from the hand nearest to him, there is a strong case for the straight jab to the body as a point scorer. The punch also affords the shorter boxer one of the best ways of getting inside – 'moving behind the jab'. I would also strongly advocate the body drop connected with the jab to the body as being a valuable feint.

1. By bending the rear leg the body is 'dropped' to put the shoulder in line with the target.
2. Power is obtained from the turn of the shoulder and the push off the back leg.
3. The front foot slides forward before impact.
4. As the arm is snapped towards the target, the arm is

straightened and the wrist turned to finish with the palm of the glove facing the floor.
5. Protection is gained from the left shoulder and the right glove which is held close to the chin.



Photograph 9.
Straight jab to the body.

Defences against the Jab to the Body (all orthodox boxers)

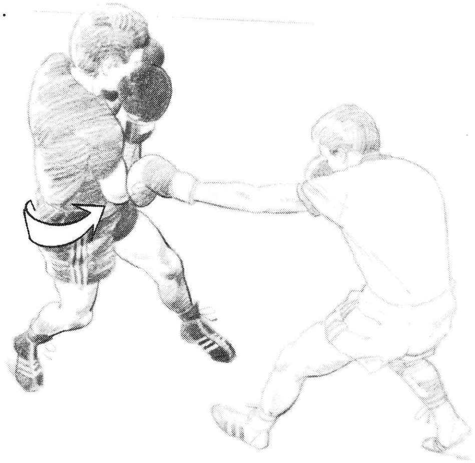
The selection of which defence to use should be carefully analysed by the coach. The coach has to decide on 'which technique suits which boxers'. He must also add a third variable – 'in which situation'. Different techniques will be found to be more effective against a particular type of opponent. A good coach should never dismiss any technique unless after analysis it fails to merit inclusion alongside his existing vocabulary of skills.

Elbow block (figure 24)

1. Turn the body at the waist to meet the jab.

2. The jab can be blocked on the forearm or elbow of either arm.
3. Feet remain in distance – elbows are kept close to the sides.
4. If the left elbow blocks the jab, the right will be used to counter, and vice versa.
5. The chin should be tucked in behind the shoulder in case of switch of attack from body to head.

Figure 24.
Elbow block.



Parrying

Any parrying implies committing the opponent by deflection – the more forceful the punch, the greater the commitment. Should the parry be 'inside' i.e. moving inside the opponent's guard, then there is the added advantage of opening up the opponent's target area. Movement of the front foot will be found to assist the movement – especially if the counter to be thrown is a left hook.

With the 'outside' parry i.e. moving outside the opponent's guard, the advantage is that the defender takes himself away from the opponent's right hand (always assuming an orthodox boxer). By combining the deflection with a foot movement he can fire a counter with his right.

Outside parry (figure 25)

1. Contact is made by the inside of the *left* glove on the wrist of the jab, deflecting the punch to the defender's left.
2. The defender's back leg steps off to the right to take him outside the line of attack.
3. Protection is given by the right glove held ready to counter and the left shoulder, with the chin tucked in.

Inside parry (figure 26)

1. The inside of the defender's *right* glove contacts the wrist of the attacker's jab deflecting it to the right of the defender.
2. A step to the left of the front foot takes the defender inside the opponent's guard and in position to counter with the left hand.
3. The left hand is held high ready to counter or block.

Push away (figure 27)

The technique is exactly the same as for the defence against the jab to the head (p. 55). Its development into the 'push back' requires a fine development of timing which can only come through purposeful, regular practice. Once having acquired the push away as a defence against one technique, there is a considerable transfer in using the defence against any attack.

1. Push off the front foot to *just* beyond the attacker's jab – back foot leads.
2. Front foot recoils into 'on-guard' position.
3. Push back – rear leg drives front foot leading to counter on the target of the committed opponent.

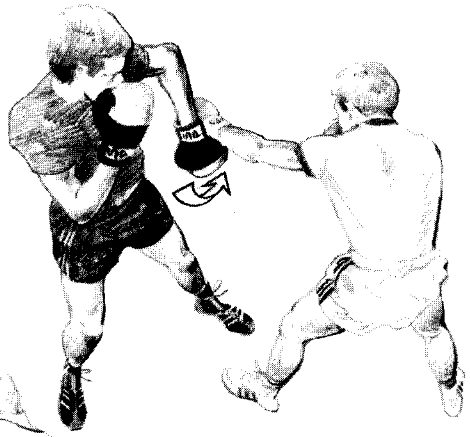


Figure 25. Outside parry.

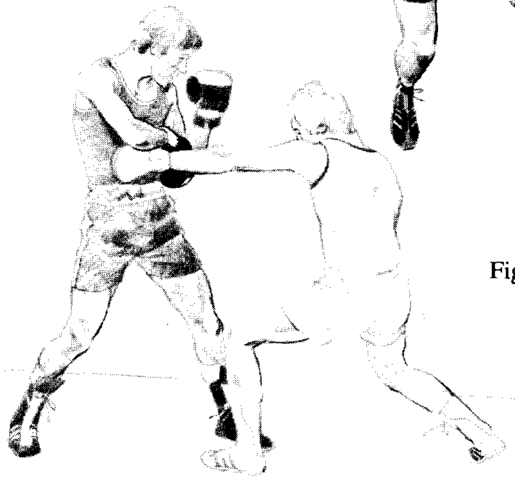


Figure 26. Inside parry.

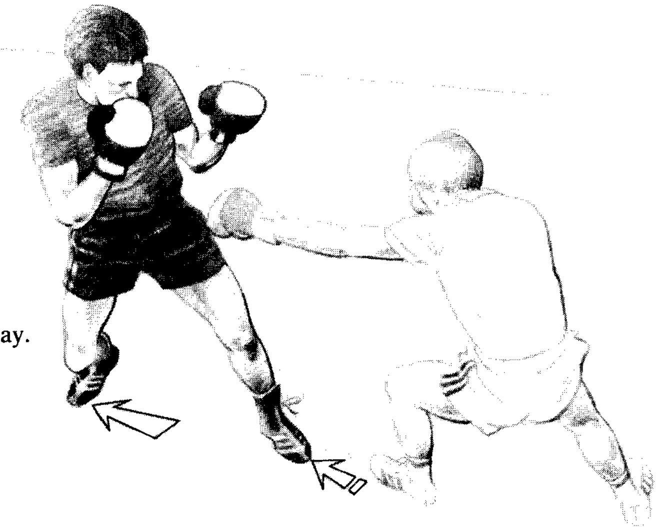


Figure 27. Push away.

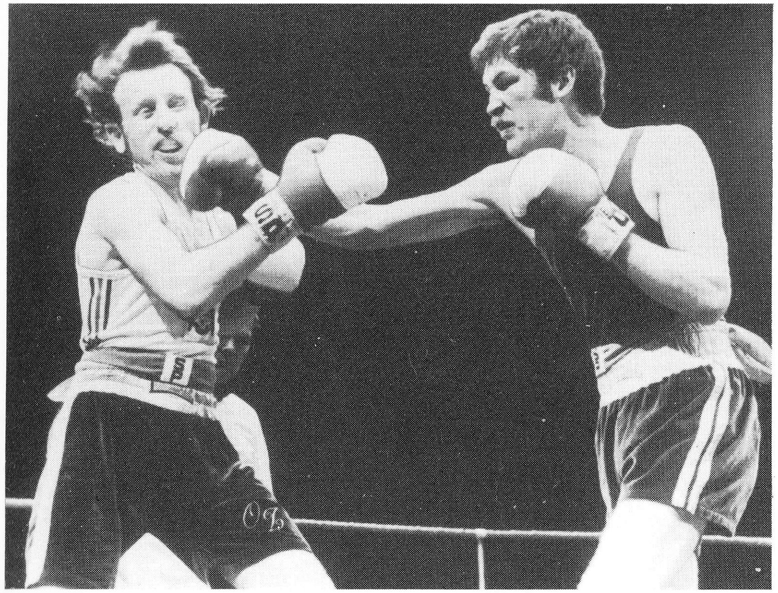
The Straight Right (orthodox boxer)

All boxers should be coached to hit correctly with the right hand. Regardless of build or style the right hand has an important role to play both as a points scorer and a power punch. The taller boxer would perhaps primarily use the right as a points scorer – but even the leanest body type can develop power, by simply hitting correctly. A well-timed straight right thrown with speed and accuracy can have a devastating effect. The shorter, thick set boxer will be looking to use his straight right more as a power punch. He must experience, under the coach's guidance, the value of using the straight right as a points scorer; though only with the most experienced boxers should it be occasionally used as a lead. The role of the straight right is basically as a counter-punch and as part of a combination.

The straight right forms a close link with the jab as the jab creates the openings for the right to explore. Should the opening be made as the opponent is moving forward, then the effectiveness of the punch is increased by the momentum of the attacker being added to the power already generated. This largely accounts for the 'short' right hand being traditionally held as the punch to do the damage. It is not the shortness of the right hand but the timing. In fact, the farther the punch travels – within its effective range – the more time it has to accelerate. Thrown at a stationary target, the same straight right travelling 0.4 metres is not as powerful as when it reaches 0.6 metres.

Straight Right to the Head (photograph 10)

1. Power comes from the drive of the rear leg, the explosive twist of the hips, the turn of the shoulders and the extension of the arm – in that sequence.
2. Body weight is driven forward on to the left foot.
3. The firm left side remains unbending in its role as a hinge to the whole movement.
4. The right arm remains relaxed until the legs, hips and shoulder have pivoted.



Photograph 10. Straight right to the head.

5. Over the last few inches the arm accelerates – aiming to hit beyond the target.
6. Protection is afforded by the left glove which remains high with elbow close to the side.
7. After contact the right arm returns at speed along the same path to its original position.

Defences against the Straight Right to the Head

Wedge block (figure 28)

1. The left arm moves at speed inside the attacking right to form a wedge with the forearm at the crook of the opponent's elbow.
2. Just before contact the left arm stiffens to force the right away from the target.
3. An adjustment of the body position, by bending slightly to the right or stepping off with the rear foot to the right, may be used.
4. The right hand should be held relaxed ready to counter.

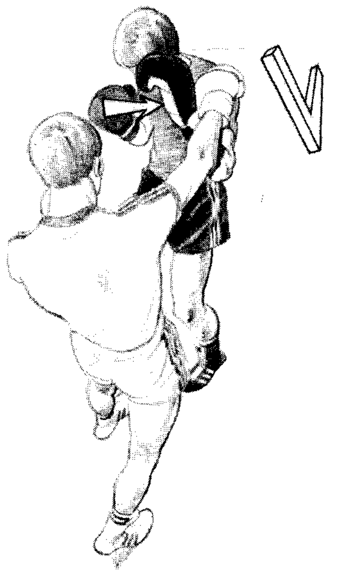


Figure 28. Wedge block.

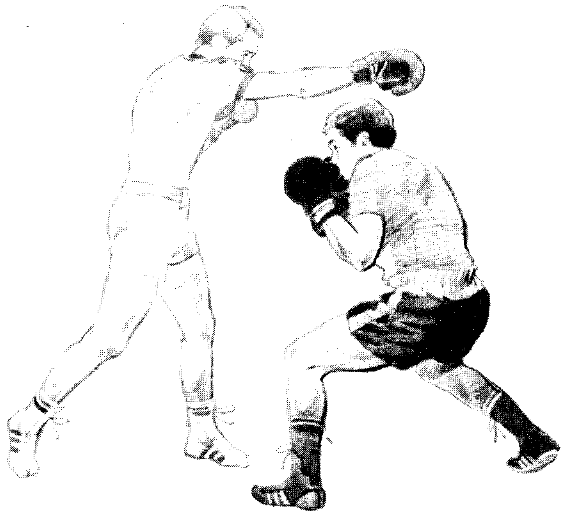


Figure 29. Ducking.

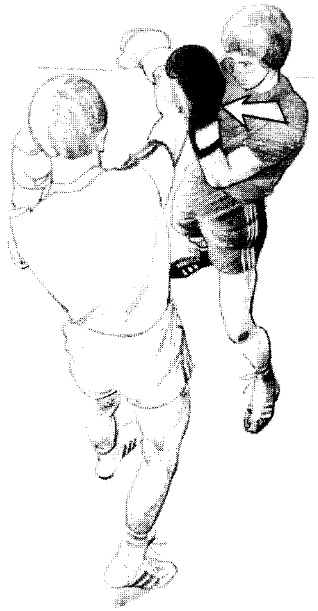
Ducking (figure 29)

1. The defender dips under the straight right by leaning forward at the waist and bending at the knees.
2. Eyes must be fixed on the opponent, gloves held in front of the face, as the punch passes over the defender's head.
3. Both hands should be held relaxed ready to counter.

Outside parry (figure 30)

1. Contact is made by the inside of the *left* glove on the glove/wrist or forearm of the attacker's right, deflecting it over the right shoulder.

Figure 30. Outside parry.



2. The defender may assist the movement by sliding his front foot to the left and slightly forward – taking him farther out of the line of attack.
3. Having committed the left hand to the deflecting movement, the right hand should be held high and relaxed ready to counter.

Push away (figure 31)

1. Push off the front foot to a position *well beyond* the range of the attacking right.
2. Front foot recoils into its original position.
3. Movement should be confined to the feet only. The upper body remains poised and relaxed.
4. To counter, 'push back' off the rear leg with the front foot leading into striking distance.

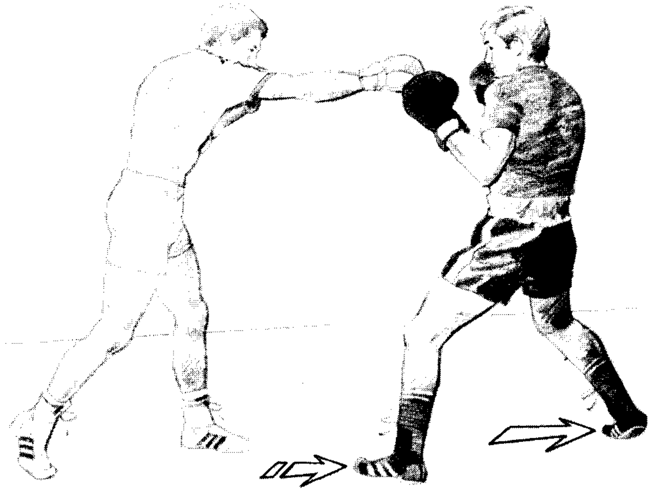


Figure 31. Push away.

Lay back (figure 32)

1. Body weight shifts towards the rear leg.
2. The head is taken out of the range of the straight right by
   (i) the trunk leaning backwards,
   (ii) the rear leg bending at the knee.

3. Countering from the 'spring back' position can be with either hand.

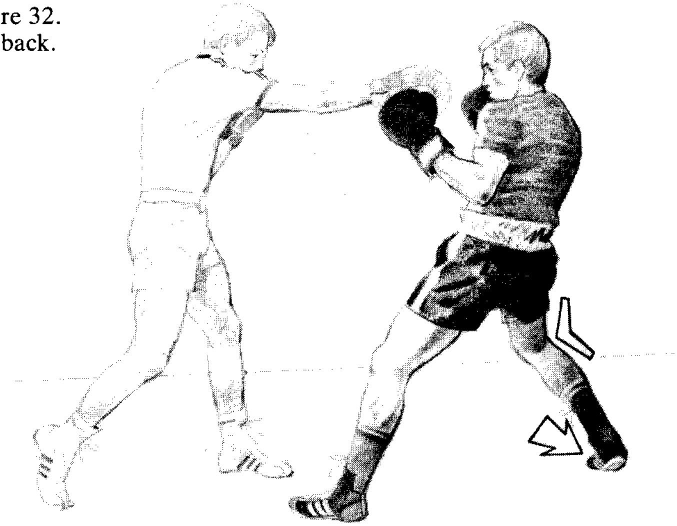


Figure 32.
Lay back.

Stop (figure 33)

Different defensive techniques will be used against varied opposition. The manner of how the punch is thrown will produce variations of basic punches. Should there be any mannerism preparatory to the punch in the form of a 'pull-back' or 'wind-up', then it can be anticipated. In such cases, the use of a 'stopping' technique is to be advocated.

1. As the punch is to be thrown, the defender's left snaps out to smother the opponent's right glove by covering it with the open palm.
2. An alternative is to jab inside the opponent's right at his shoulder, thereby upsetting his balance and body position as he prepares to throw the straight right.
3. As a secondary defence, the chin should be well tucked in behind the shoulder.
4. Any counter must come from the relaxed right hand which is held high.

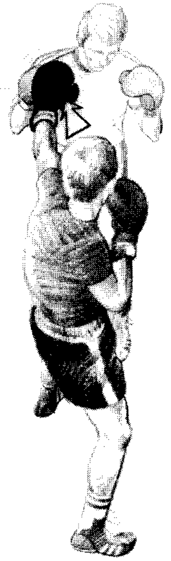


Figure 33.
The stop.

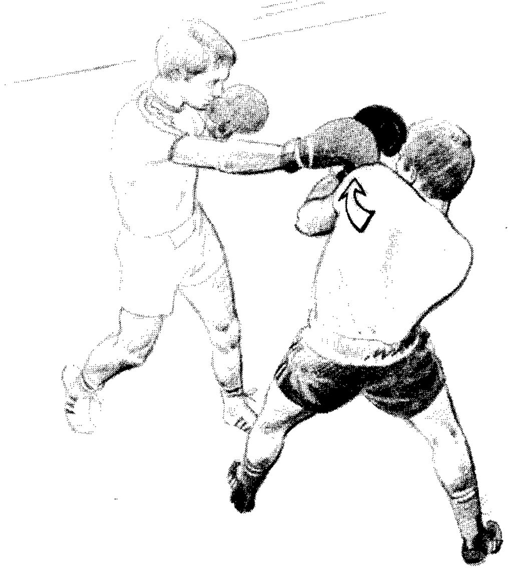


Figure 34. Shoulder block.

Shoulder block (figure 34)

1. The left forearm and shoulder are turned into the line of the straight right.
2. Body weight is transferred on to the right leg, or the rear leg slides off to the right.
3. Blocking is by the shoulder and the raised left forearm which are kept close together.
4. Any counter will be thrown by the right hand which should be held ready to take advantage of the extra leverage which the turning of the left shoulder gives.

Slip outside (figure 35)

1. Body weight moves to the left leg – balance must not be disturbed.
2. Hips pivot slightly forward to allow the left shoulder to dip to the left, with both hands held high.
3. A bend of the left leg and/or a foot movement to the left

allows the opponent's straight right to pass over the right shoulder.
4. The counter could be with either hand.

Figure 35.
Slip outside.

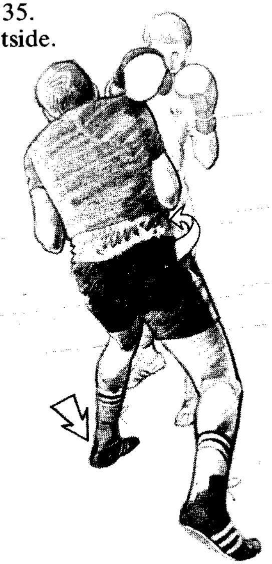
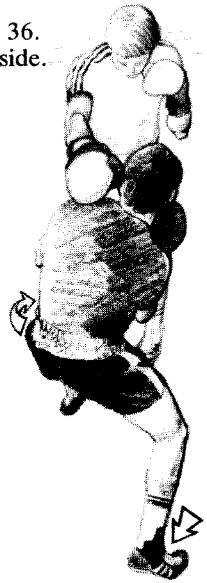


Figure 36.
Slip inside.



Slip inside (figure 36)

1. Body weight moves to the right foot which slides a few inches to the right.
2. Left shoulder turns slightly inside as the right shoulder dips to the right to allow the glove to pass over the left shoulder.
3. Balance is preserved to counter with either hand.

Rolling (figure 37)

1. Slip inside the straight right – without any movement of the feet, body weight being transferred to the right leg.
2. Roll under the glove, slide the left foot to the left – body weight transfers to left leg – push up outside the opponent's right.
3. It is vital to keep a high guard throughout what should be a flowing movement.
4. Countering can be with either hand.

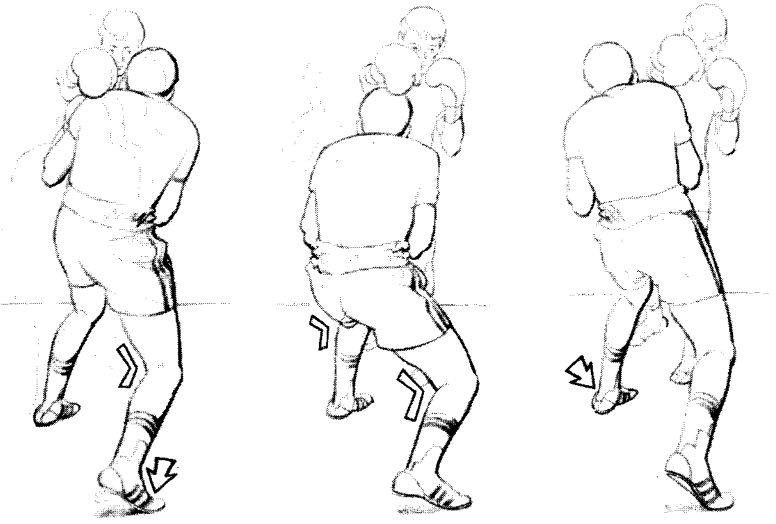
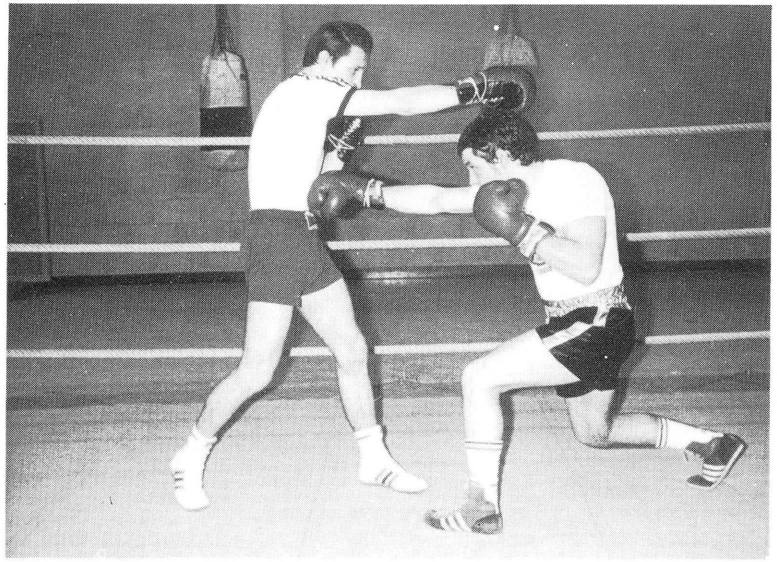


Figure 37. Rolling.

Straight Right to the Body (photograph 11)

1. By bending the rear leg the body is 'dropped' to put the shoulder in line with the punch.
2. Power comes from the drive of the back leg, the explosive turn of the body and the straightening of the arm.
3. Body weight is driven over the front foot which is firmly planted before impact, its 'range finder' role may require it to move.
4. The left shoulder should not be allowed to drop, with the left glove and arm closely guarding the left side of the target area.
5. The right arm relaxes until the drive of the back leg and trunk is completed; it then snaps towards the target.
6. As the arm straightens, the fist is turned inwards to end palm facing the floor.
7. Over the last few inches the arm accelerates, aiming to hit 'just beyond' the target.
8. After contact, the right arm returns at speed to its original position.



Photograph 11. Straight right to the body.

Defences against Straight Right to the Body

Elbow block (figure 38)

1. Turn the body to the right at the waist to meet the straight right with the left elbow and forearm.
2. Feet remain in distance; elbows are kept close to the sides.
3. Be ready to pivot back to counter with a right.
4. The chin should be tucked in behind the shoulder.

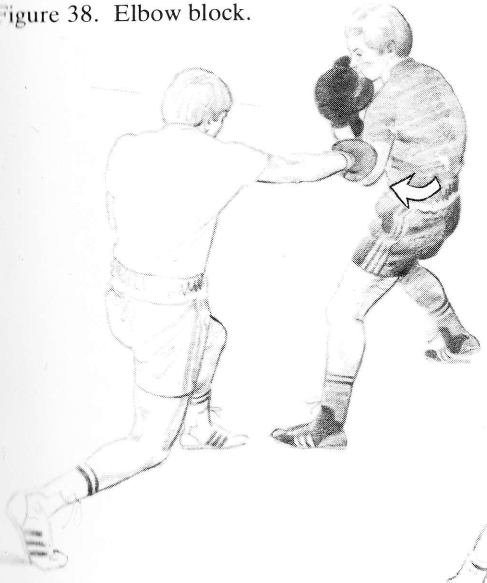
Inside wedge (figure 39)

1. Meet the right with a fast downward sweep of the left arm, assisting the movement by sliding the back leg to the right.
2. Contact should be made with a stiff forearm or open glove, on the wrist or forearm of the opponent's attacking right.
3. The right hand should be held ready to counter.

Outside parry (figure 40)

1. Contact is made by the inside of the right glove on the wrist or forearm of the attacking right, deflecting the punch to the defender's right.

Figure 38. Elbow block.



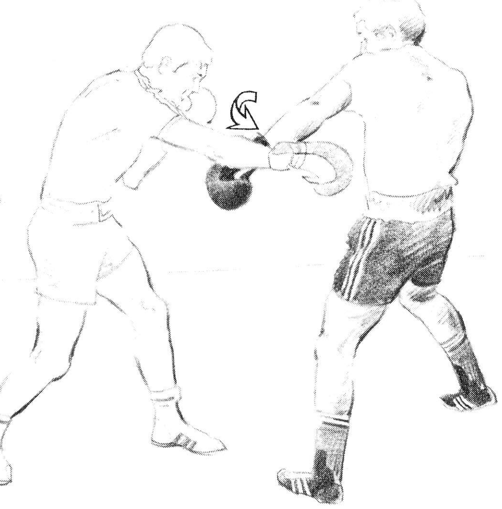
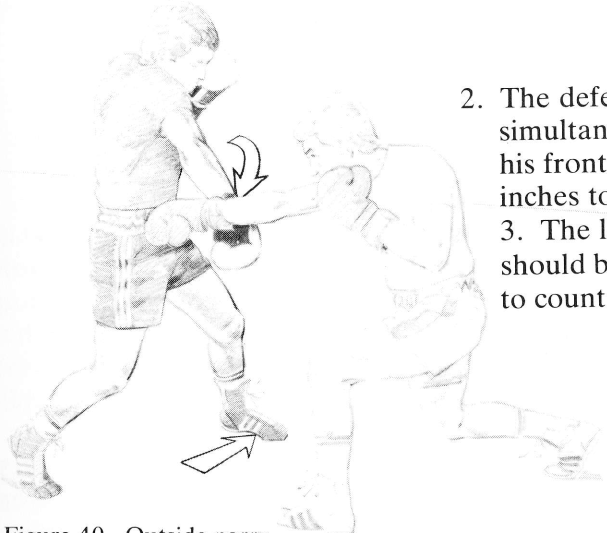


Figure 39. Inside wedge.



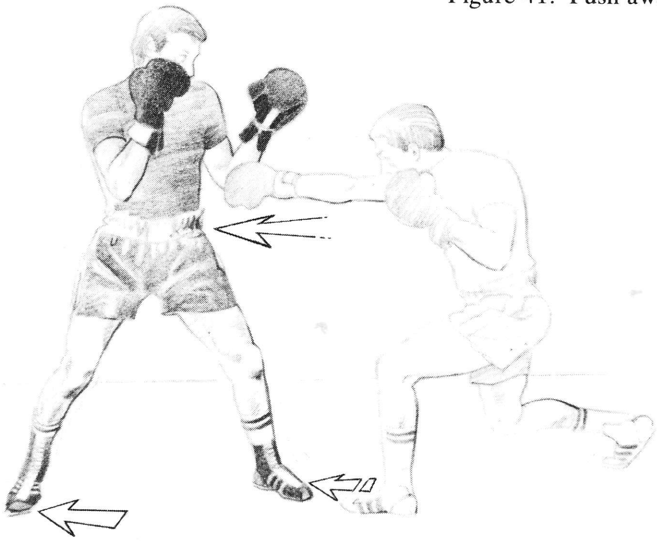
2. The defender simultaneously slides his front foot a few inches to the left.
3. The left hand should be held ready to counter.

Figure 40. Outside parry.

Push away (figure 41)

1. Push off the front foot to a position well beyond the range of the attacking right.
2. Front foot recoils into its original position.
3. Movement should be confined to the feet only, the upper body remaining poised to counter.
4. To counter, 'push back' off the rear leg with the front foot leading into striking distance.

Figure 41. Push away.



The Left Hook

Should there be any one punch which could be singled out as the hallmark of the champion, it must be the left hook. Its role is essentially as a counter-punch or to follow the opening made by the jab. As the hand nearest to the opponent it has three advantages; the shortest distance to travel, it gives the opponent less time to react and it can capitalise on a split second opening.

As part of a combination it can have a devastating effect. When thrown to finish off a combination, it naturally 'closes' the target area back to the balanced on-guard position. Being

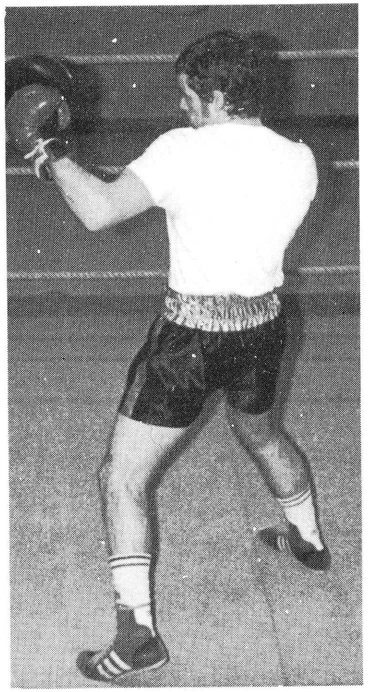
a bent arm punch it can be thrown outside the line of vision of the opponent, coming under or round the guard. When thrown to the head it has the value of all hooks, both left and right, of hitting across the opponent. From such an attack the head does not have the same resilience as it does to straight shots in absorbing the impact by riding or transmitting the shock into the supporting neck and trunk muscles.

There are many variations which the boxer should know. These are dealt with in chapter four. A major criticism of many boxers would be that they are too stereotyped in the left hook which they use. Having grooved one basic, sound hook, the coach should present each boxer with the opportunity to experiment with all the variations in distance and angles which suit his style. The left hook should be equally seen as a point scorer and a power punch. Then many opportunities will present themselves to score, which otherwise would have been lost as he waited for the 'one perfect opening'.

Left Hook to the Head

(photograph 12)

1. Power comes from the explosive rotation of the left side, with the right side acting as a firm door-like hinge.
2. Body weight is transferred from the left to the right leg.
3. The sequence of ankle drive, hip pivot, shoulder turn – all performed at explosive speed – takes the arm into striking distance.
4. Held relaxed until this point, the left arm retains an approximate 90 degrees bend at the elbow throughout the punch.



Photograph 12. The left hook.

5. It now adds its whip-like effect to the punch – accelerating over the last few inches at a spot a few inches ‘beyond’ the target surface.
6. For the basic left hook, the palm of the glove faces inwards, thumb on top, and the arm travels approximately 45 degrees to the floor.
7. The right glove is held in a high position, forward of the right shoulder, ready to block a straight or hook counter.

Defences against the Left Hook to the Head

Forearm block (figure 42)

1. The hips pivot the right shoulder inside the left hook, with the right hand moving into a ‘salute’.
2. Blocking is by the shoulder and forearm – which should be rigid as the punch lands.
3. Any counter will be thrown by the right hand which should be held ready to take advantage of the extra leverage the turning of the right shoulder gives.

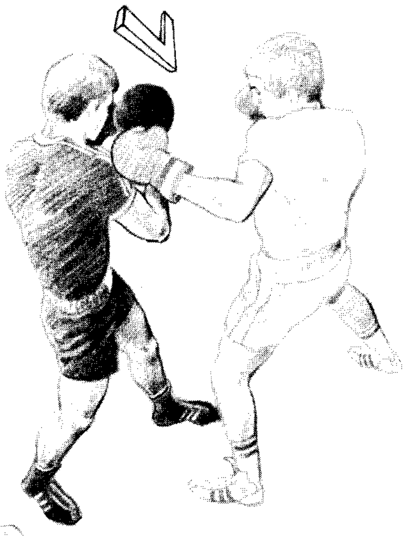
Wedge block (figure 43)

1. The right arm moves at speed inside the attacking left hook to form a wedge with the forearm at the opponent’s crook of the elbow.
2. Just before contact, the right arm stiffens to afford rigid resistance to the hook, forcing it away.
3. By simultaneously sliding the front foot a few inches to the left, the target is taken away from the hook.
4. The left hand should be held relaxed ready to counter or ‘stop’ (see page 70) the opponent’s right.

Ducking (figure 44)

1. The defender dips under the left hook by leaning forward at the waist and flexing the knees.
2. The eyes are fixed on the opponent – the gloves held in front of the face.
3. As the left hook passes over the defender’s head, countering can be with either hand.

Figure 42. Forearm block.



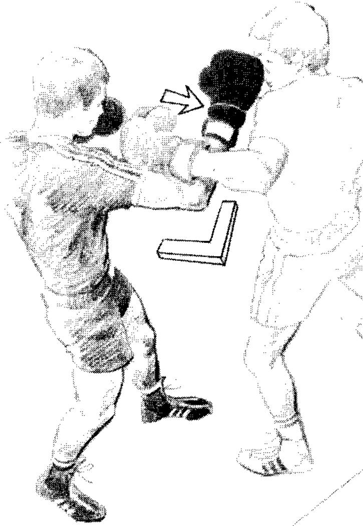


Figure 43. Wedge block.

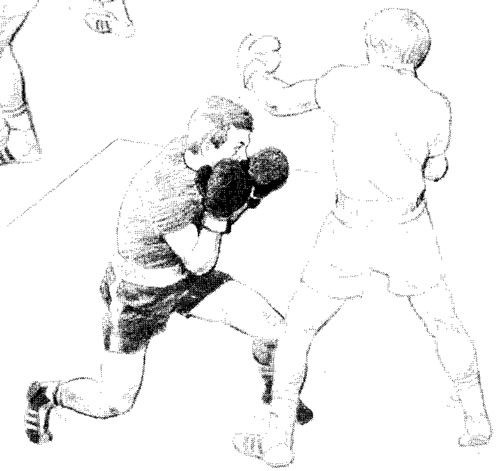


Figure 44. Ducking.

Lay back (figure 45)

1. Body weight shifts to the rear leg.
2. The target is taken out of the range of the left hook by
   (i) the trunk leaning backwards,
   (ii) the rear leg bending at the knee.
3. Countering from the 'spring back' position can be with either hand.

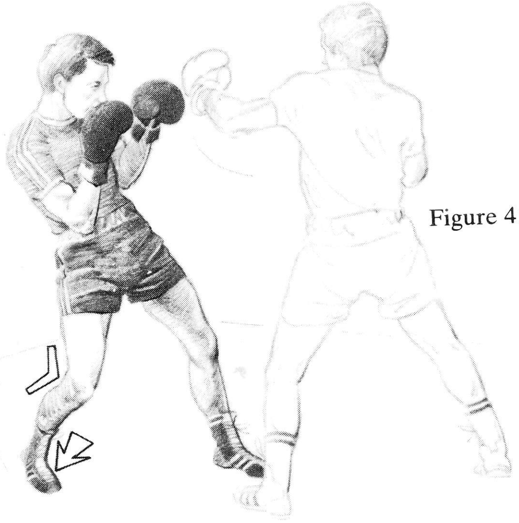


Figure 45. Lay back.

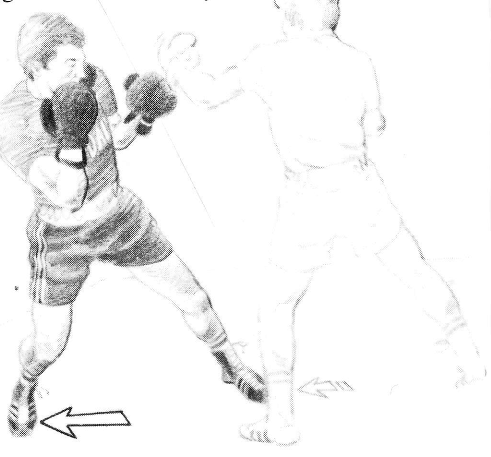


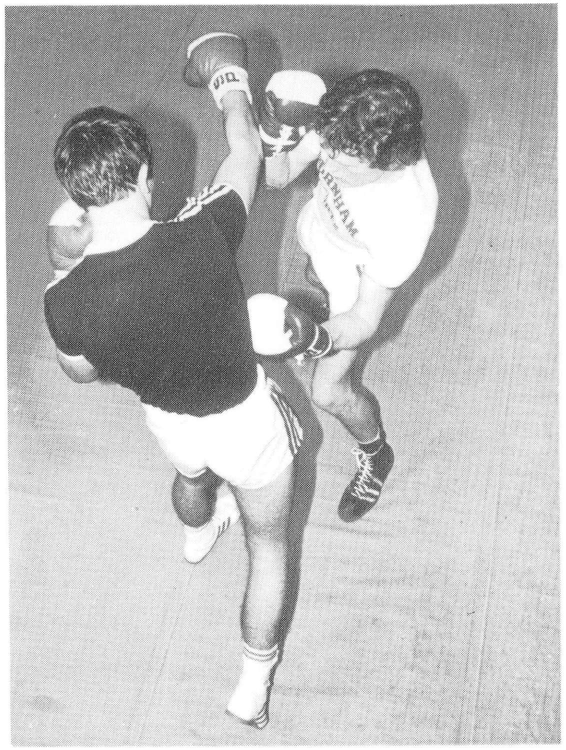
Figure 46. Push away.

Push away (figure 46)

1. Push off the front foot to a position *just* beyond the left hook's range.
2. The right hand remains high as a 'secondary' defence.
3. Front foot recoils into its original position.
4. To counter, 'push back' off the rear leg.

Left Hook to the Body (photograph 13)

1. The left shoulder dips forward by
   (i) bending at the waist
   and (ii) flexing the left knee.
2. Power comes from the accumulated explosive drive of the left leg, hips and shoulders, with the left arm adding to the momentum in a 'whip-like' movement.
3. The palm of the glove faces inwards, thumb on top, as the glove is driven into the opponent's solar plexus.
4. Throughout the punch the arm retains its 90 degrees (approx) bend at the elbow, being relaxed until the vital acceleration over the last few inches.
5. Protection is afforded by the right hand which remains in front of the right shoulder to block any counter.



Photograph 13. Left hook to the body.

Defences against the Left Hook to the Body

Inside wedge (figure 47)

1. Meet the left hook with a fast downward sweep of the right arm.
2. Contact should be made with a stiff forearm at the crook of the opponent's elbow.
3. The left arm remains ready to counter or 'stop' the opponent's right.

Elbow block (figure 48)

1. Turn the trunk to the left at the waist with the elbows close to the side.
2. Intercept the hook on the right forearm/elbow.
3. Feet remain set to absorb the impact.
4. Be ready to pivot with a left counter.

Push away (figure 49)

The sequence is as described in the sections on defences against the jab and straight right (pages 54, 69). This should not detract from its value. It should feature prominently in the technique coaching of all boxers, regardless of styles.

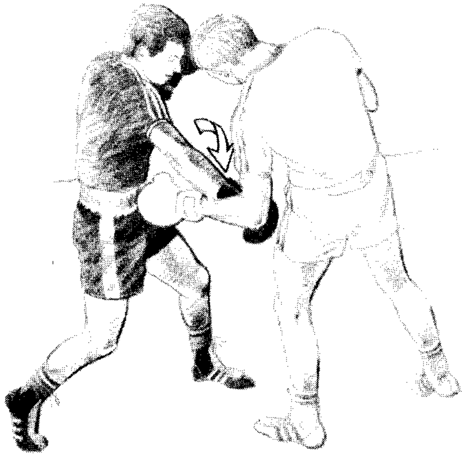


Figure 47. Inside wedge.

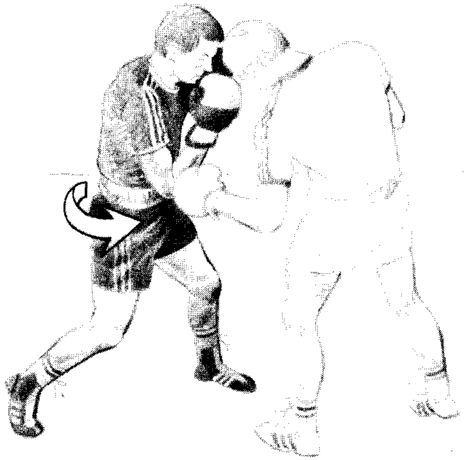


Figure 48. Elbow block.

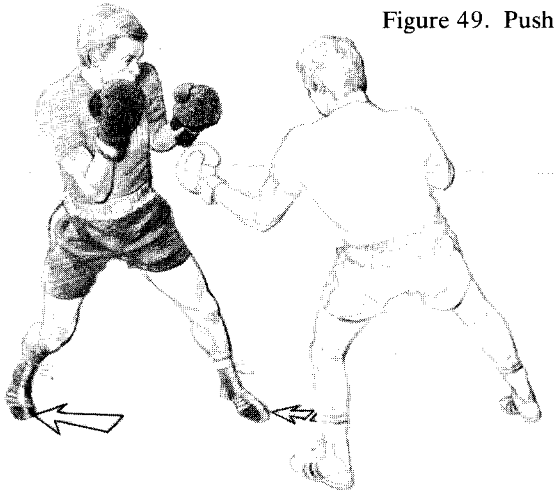


Figure 49. Push away.

Uppercuts

An uppercut is a punch thrown to head or body, with either hand, in which the palm of the glove faces the puncher and the arm travels at an angle of 90 degrees to the floor. It may be differentiated from a steep hook by the fact that the path it follows is perpendicular – along the centre line of the body.

Rotation is around the frontal axis whereas in hooking it is around the vertical axis. Traditionally it is used in short range punching (in-fighting) and hence it is essential ammunition for the shorter, more compact boxer. It is also an extremely effective counter-punch.

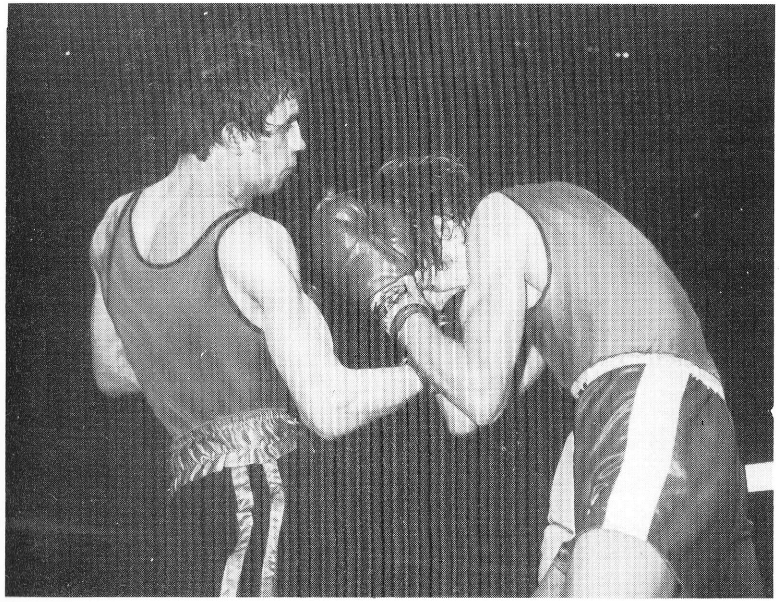
Not only does the ability to throw uppercuts require a great deal of practice, but uppercutting needs a high degree of flexibility at the hips. In many cases, physical limitations of the boxer will produce an interpretation of the technique which falls short of the required level. An improvement in the technique is only possible when the physical 'handicap' is reduced. Flexibility can certainly be improved, as can the absolutely vital ability to relax whilst punching. The degree of improvement possible is set by the innate level of co-ordination of the boxer.

Initially, practice should centre on the right uppercut – for the orthodox boxer, this should be easier to acquire by virtue of the hip position and feet. The position of the guarding non-punching hand needs to be watched with care. It should be held in such a position as to allow for the rotation around the frontal axis. Once a basic left and right uppercut to the head and body is acquired, attention can turn to varying the distance from which the uppercuts are thrown.

The first task is to establish the four basic uppercuts:

The right uppercut (head or body) (photograph 14)

1. The right shoulder dips to the right and the hips are pushed to the left.
2. The punch comes up the centre line of the body.
3. Power comes from the explosive drive of the right leg and hip, and the final acceleration of the arm.
4. The right arm is kept bent with the palm of the glove facing the puncher throughout the movement.
5. A relaxed right arm is snapped away from the side as the hips complete their drive. The arm stiffens to accelerate over the last few inches.
6. Drive is upwards through the target with the guarding glove held directly in front of the face.



Photograph 14. Right uppercut to the head.

The left uppercut (head and body) (figures 50, 51)

The sequence of movement is very similar to the right uppercut but, by virtue of the shorter distance which it has to travel, the left uppercut describes a steeper path. It also follows that without the extra leverage which the right uppercut possesses, compensation has to be made in the extra explosive drive of the left leg and hips.

1. Dip the left shoulder to the left and push the hips to the right.
2. The punch comes up the centre line of the body.
3. Power comes from the explosive drive of the left leg and hips, and the final acceleration of the arm.
4. The left arm is kept bent with the palm facing the puncher throughout the movement.
5. A relaxed left arm is snapped from the side as the hips

complete their drive. The arm stiffens to accelerate over the last few inches.

6. Drive is upward through the target, with the guarding glove held directly in front of the face.

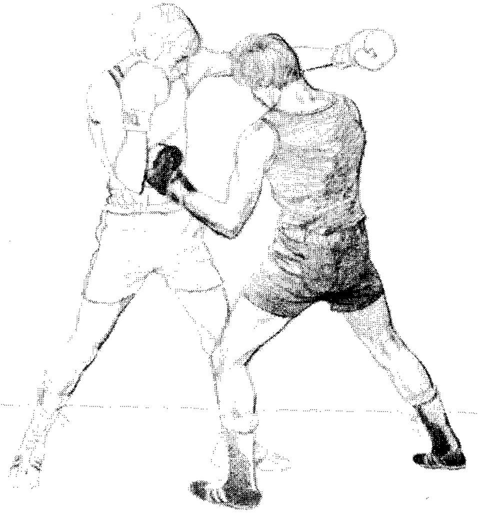


Figure 50. Left uppercut to the body.

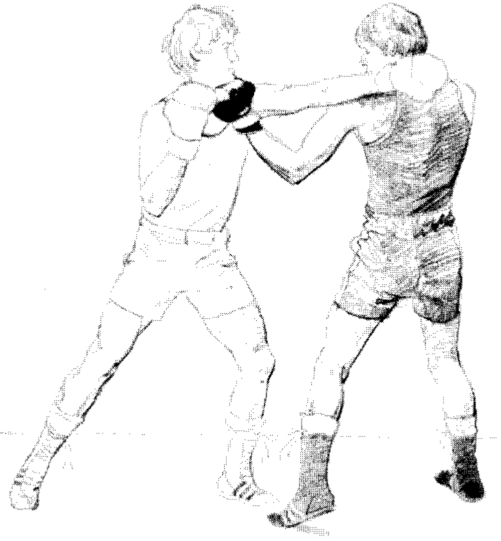


Figure 51. Left uppercut to the head.

Defences against the Uppercuts to the Head

Lay back (figure 52)

1. Body weight shifts to the rear leg.
2. The target is taken out of the range of the uppercut by
   (i) the trunk leaning backwards,
   and (ii) the rear leg flexing at the knee.
3. Countering from the 'spring back' position can be with either hand.

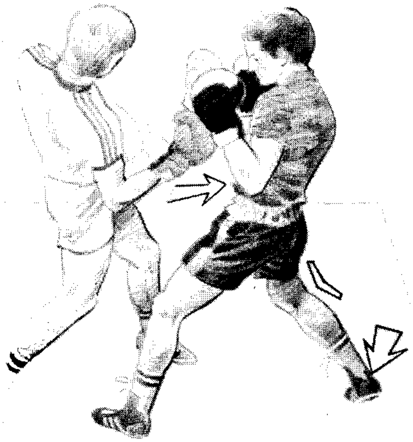


Figure 52. Lay back.

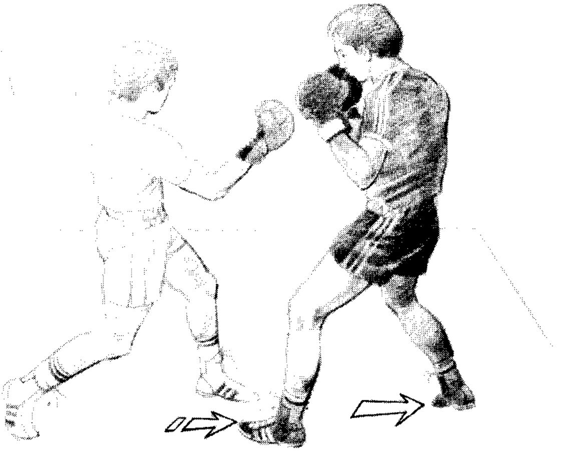


Figure 53. Push away.

Push away (figure 53)

1. Push off the front foot to a position *just* beyond the uppercut's range.
2. The front foot recoils to its original 'on-guard' position.
3. To counter, push back off the rear leg into striking distance.

Defences against Uppercuts to the Body

Elbow block (figure 54)

1. Intercept the uppercut with the elbow by
   (i) pivoting the hips at the waist,
   and (ii) sliding the elbow across the body (left elbow meets right uppercut, right elbow meets left uppercut).
2. Feet remain in distance, hands ready to counter.
3. The chin is tucked in and the shoulders are rounded.

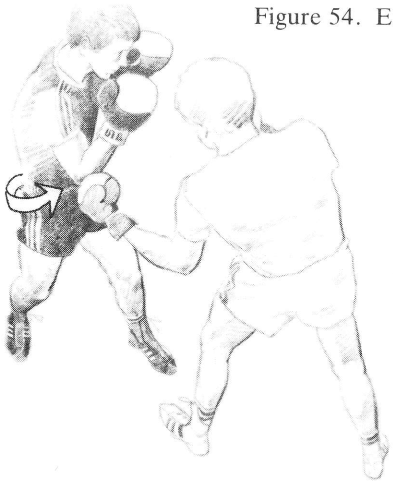


Figure 54. Elbow block.

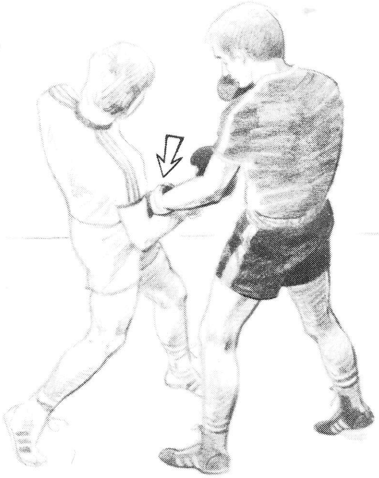


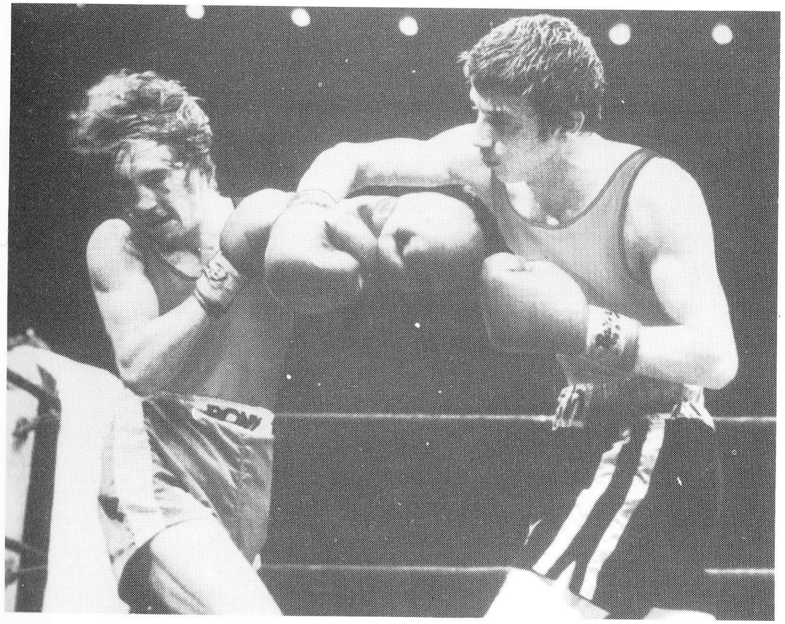
Figure 55. Inside wedge.

Inside wedge (figure 55)

1. Meet the uppercut at the crook of the elbow with a fast downward sweep of the arm (left arm meets right uppercut, right arm meets left uppercut).
2. Contact should be made with a stiff forearm.
3. The chin is tucked in and the non-defending arm is ready to counter.

The Right Hook to the Head (photograph 15)

Thrown correctly, the right hook is perhaps the most dangerous punch of all. The punch comes from outside the line of vision of the defender and can be thrown round the defender's leading glove. Its role is mainly as a counter-punch or as part of a combination. Because the punch is a bent arm blow thrown with the rear hand, the distance between the target and the attacking right has to be shortened. This can be done by (i) sliding the right foot forward, (ii) stepping to the right, or (iii) trapping the opponent in a forward committed position.



Photograph 15. Right hook to the head.

Having attained the correct striking distance the sequence of movement is as follows:

(i) The right leg drives the hips and the right shoulder to the centre line of the body in an explosive pivot.

(ii) A relaxed bent right arm whips through to land with the palm of the glove to the floor, an approximate 90–100 degrees angle being retained throughout the movement.
(iii) Body weight is transferred to the left foot, the left side remains firm throughout acting as a hinge.
(iv) The left guarding arm is held in a relaxed high position ready to block a counter attack.
(v) As with the left hook the arm accelerates over the last few inches to add the snap effect.

Defences against the Right Hook to the Head

Lay back (figure 56)

1. Body weight is pushed from the front to the rear leg.
2. The head is taken out of the range of the right hook by the bend of the right leg and the lean of the trunk backwards.
3. Both hands remain high in a guarding position.
4. The counter to be thrown will depend on the commitment of the attack, but preference must be given to the straight right from the 'spring back' position.

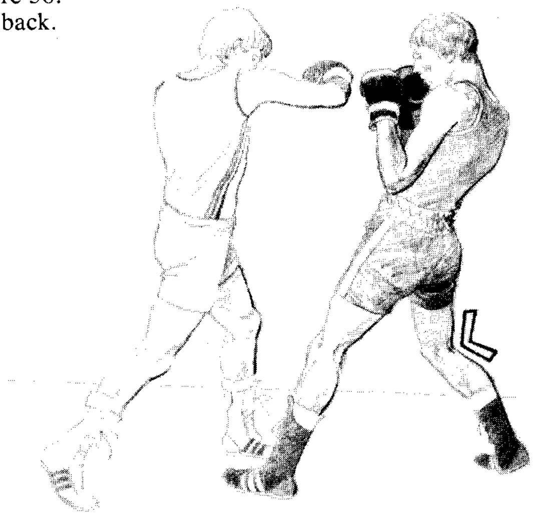


Figure 56.
Lay back.

Ducking (figure 57)

1. The defender dips under the right hook by bending the knees with the right leg having a greater degree of flexion.
2. Simultaneously, the trunk bends forward with the defender's gloves held in front of the face throughout the movement.
3. Eyes remain fixed on the attacker's face throughout.
4. Countering can be with either hand, preference being perhaps given to the straight right to the body or left hook to the head. The latter affords the extra drive from the flexed legs.

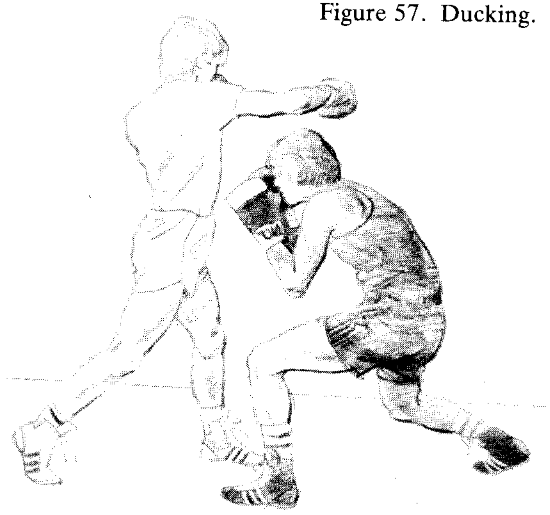


Figure 57. Ducking.

Push away (figure 58)

1. The push of the front foot should take the target to just beyond the path of the right hook.
2. As with all backward foot movements the rear foot leads, the front foot following in a gliding movement, each covering the same distance to retain balance.
3. Having made the opponent miss, the 'push back' of the rear leg with the front leg leading takes the defender back into striking distance.

4. The left hand is held high with chin tucked in behind the shoulder as a secondary defence.
5. As neither hand is used in the defence either can be used in the counter. The left jab or straight right to the head being preferred.

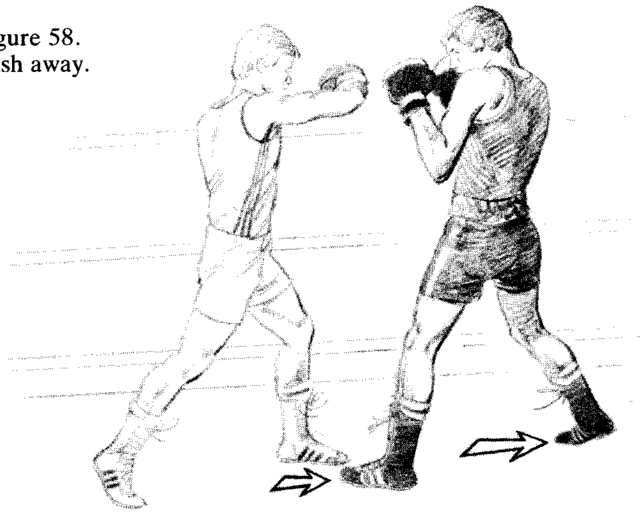


Figure 58.
Push away.

Wedge block (figure 59)

1. The orthodox boxer's left forearm drives inside the oncoming right hook to meet the crook of the opponent's elbow.
2. Body weight is transferred to the right leg with a step to the right taking the defender away from the oncoming hook.
3. The defender's forearm stiffens on contact with the hook.

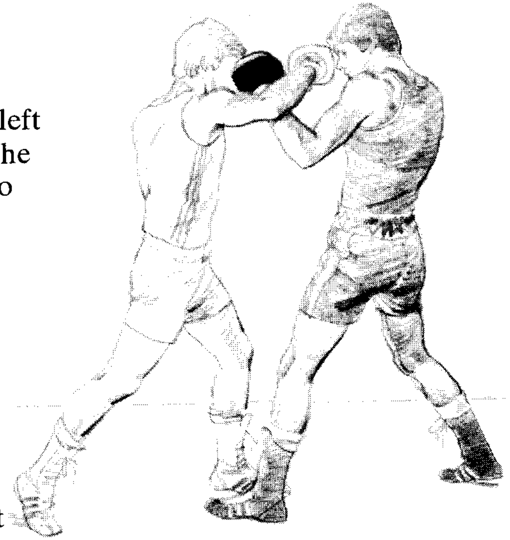


Figure 59. Wedge block.

4. The chin remains tucked in behind the shoulder on a secondary line of defence.
5. A straight right to the head is the natural counter.

Covering

At some point in a boxer's career he will be faced with a non-stop barrage of punches. Perhaps he may be caught in a corner by a surprise attack of hooks and uppercuts as his opponent applies pressure. Under the circumstances he will be forced to seek momentary refuge from the storm – to cover. The immediate aim is to frustrate the opponent's attack, and protect the target area, whilst regaining composure and taking stock of his opponent. Positive action must follow as soon as possible. This could be in the form of moving off the ropes or launching a counter-attack.

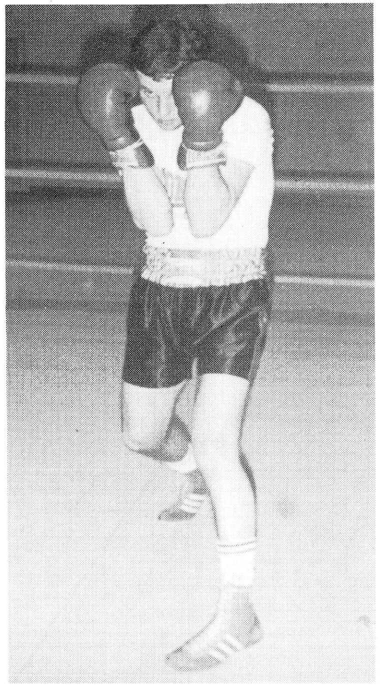
The coach should help the boxer to select which of the three basic covering positions is most effective. Factors such as body type, speed of reaction, boxing style and temperament should be considered. But only by using all three will he really find the method which

(*a*) is most effective,
(*b*) feels 'right' to the individual.

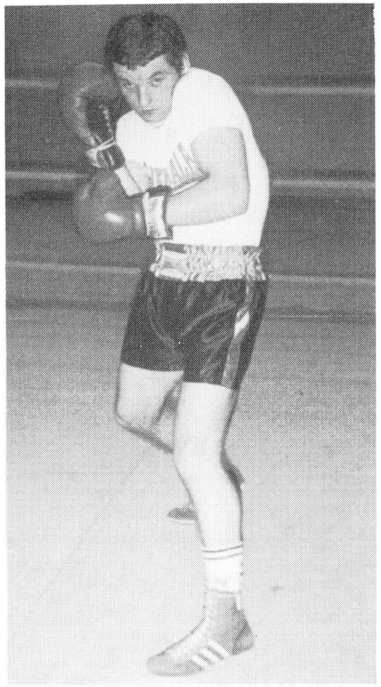
The latter is vital in all technique coaching, for on this depends the degree of confidence which a boxer will have in the technique. If he does not have sufficient confidence, he will not use it in a 'stress' situation – the heat of a contest. In covering this is particularly so, since the pressure exerted on the boxer whilst he has to use the technique is very high.

Double cover (photograph 16)

1. Both hands are held high, palms facing the defender, elbows held close to the sides.
2. Shoulders are rounded, chin tucked in, and eyes focus between the gloves on to the opponent.
3. Movement from the waist, rolling and weaving, will present an elusive target.
4. Counter attack with a sequence of short straight punches to the head.



Photograph 16. Double cover.



Photograph 17. Half cover.

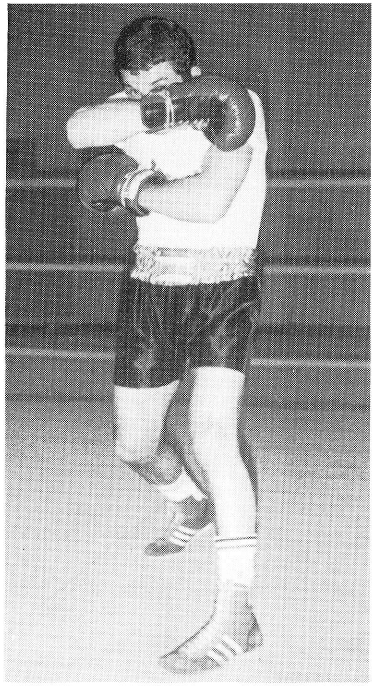
Half cover (photograph 17)

1. The trunk is turned sideways to 'close' the target area.
2. Body weight shifts to the back foot.
3. Protection from the left side comes from the raised left shoulder behind which the chin is tucked.
4. Protection for the right side comes from the raised right arm with the left forearm guarding the body.
5. From this position the right hand can launch a counter-attack, or the defender can slide off to the right (against an orthodox boxer).

Cross guard (photograph 18)

1. Protection for the head comes from the right forearm which is bent across the face, chin tucked in, shoulders hunched.

2. Protection for the body comes from the left forearm, which is held across the solar plexus.
3. An elusive target may be presented by moving at the waist.
4. Eyes should be looking over the right forearm for the opening to throw the most natural counter from the body's position – a left hook.

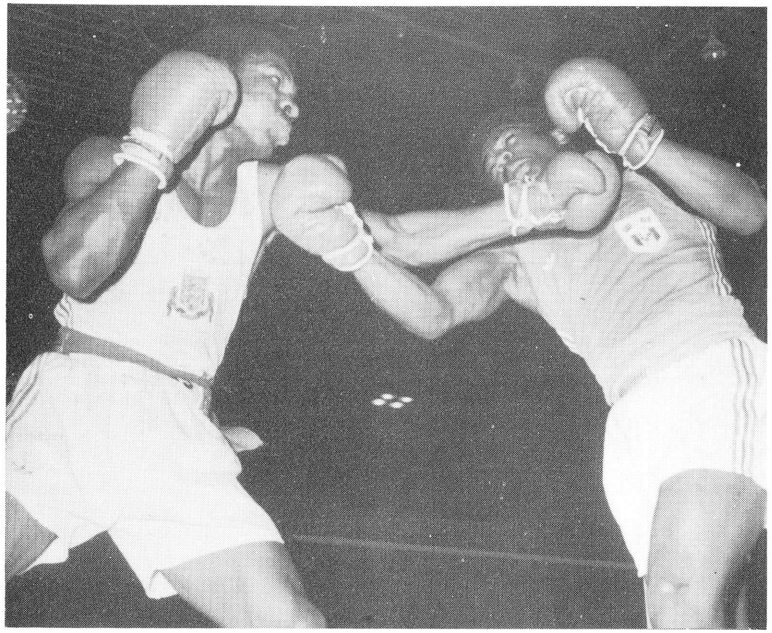


Photograph 18.
Cross guard.

Counter-Punching (photograph 19)

Having examined the basic punches and defences, the coach should always bear in mind that there should be a natural progression to counter-punching. Defensive skills should be presented with reference to possible counters, the boxer will then be more receptive to, and mentally prepared for, what would be a natural sequel. Before deciding upon specific counters for specific punches, the coach should endeavour to look at countering as a whole concept. He will then develop his own analytical process and thus work out counters and tactics accordingly. Once having looked at the underlying principles he can proceed from the general to the specific.

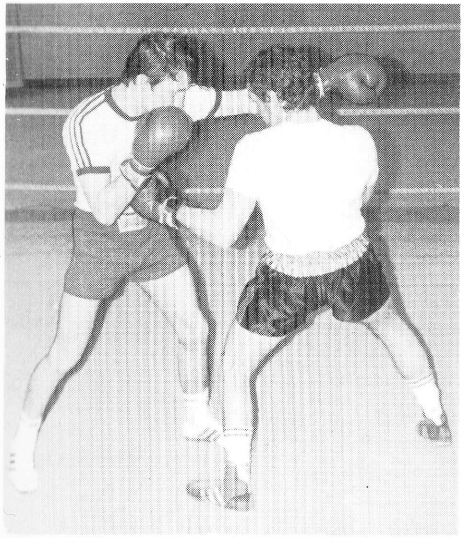
The individuality of the boxer will require different counters for different opponents. In the contest situation there are



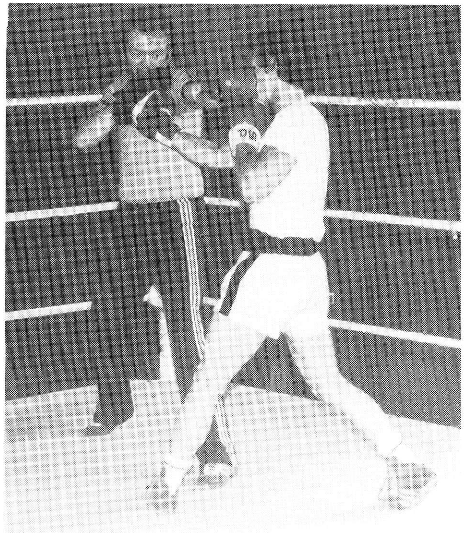
Photograph 19. The right uppercut to the head being used as a counter against the left jab.

three basic variables which should affect the selection of the counter to be used:

1. The Boxer: his build, style, movement speed, level of co-ordination, flexibility, temperament, level of fitness, intelligence, and choice of counter-options.
2. His Opponent: a comparison of the physical factors in (2), particularly height and reach comparison, mannerisms in technique, position of the non-punching hand, direction of preferred movement, his 'danger' punch, commitment of body weight when punching, and the power of the punch being countered.
3. The Contest: the tactics being used, the stage of the bout – 'who is winning', the relative position of the boxers in the ring, and cautions or warnings previously issued by the referee.



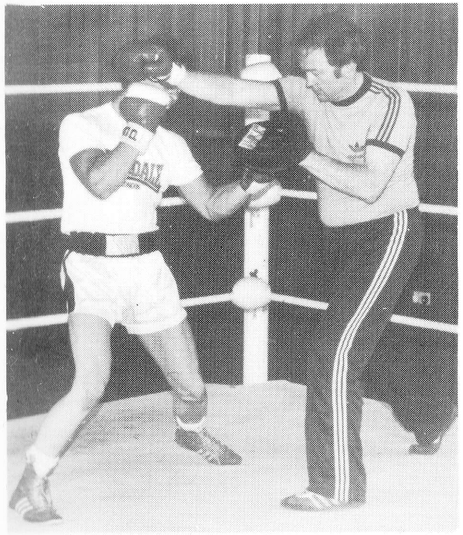
Photograph 20. Left hook to body as counter.



The angle of the pad dictates the type of counter.

Photograph 21 *(above right)* – against the jab.

Photograph 22 *(left)* – against the right cross.



A counter may be thrown with either hand to the head or body as a single punch or a combination of punches. Initially, a boxer should be taught a single counter against one punch. Once the vital confidence is gained and the skill acquired, alternative counters against the same punch can be attempted. Variations in angles of punching deviating from the basic technique may then follow (photograph 22). Throughout the boxer should be encouraged to think for himself and to develop his own analytical process. Each counter or variation should be based on the following principles:

General principles of countering

1. Where a hand is used in the defensive technique, the 'free' hand is more able to counter (figure 60).
2. Advantage should be taken when possible of the committed body weight of the opponent as he comes on to the counter (figure 61).

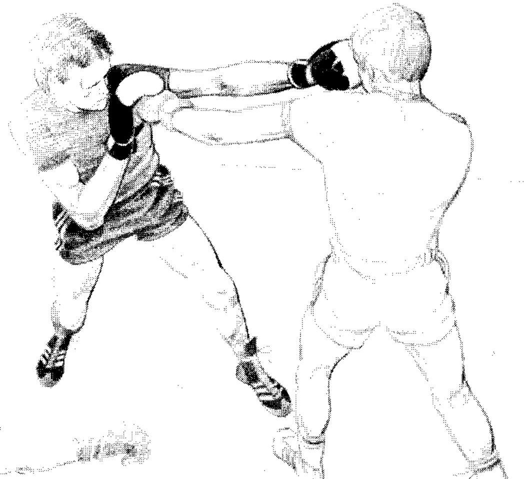


Figure 60. Use of free hand to counter.

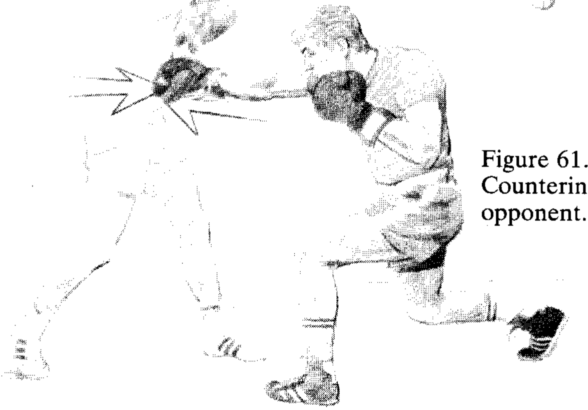


Figure 61. Countering against committed opponent.

3. In selecting which hand to use all things being equal preference should be given to the side to which the body weight has been transferred in the defensive movement (figure 62).

4. Where possible, the counter should be launched from outside the line of possible attack from the opponent's 'other' hand (figure 63).
5. The natural 'end' position of the defensive movement often lends itself to gaining leverage for the counter (figure 64).

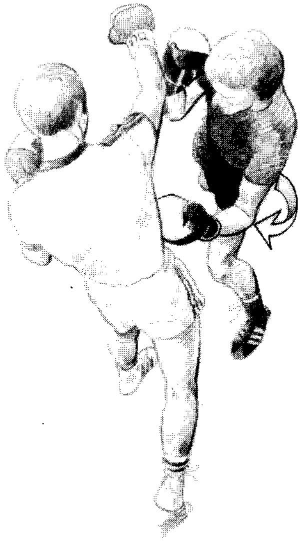


Figure 62. Use of transferred body weight in countering.

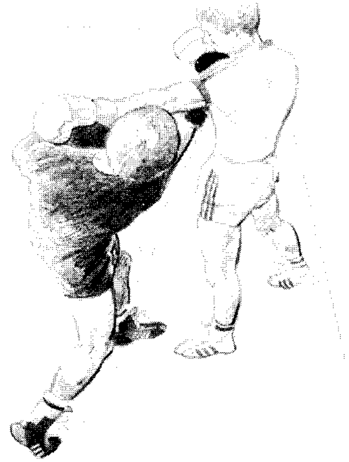


Figure 63. Countering from outside line of attack.

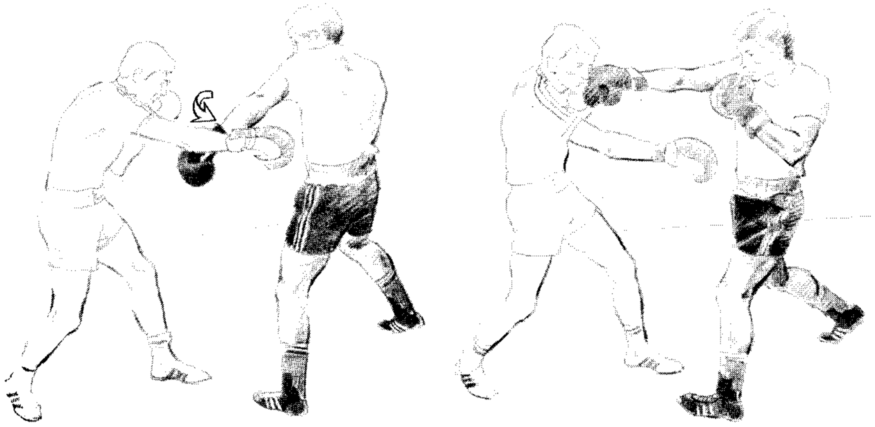


Figure 64. Countering leverage.

6. Counters thrown from outside the line of vision of the opposition contain the elements of surprise and unpredictability (figure 65).
7. When the legs are part of the defensive action, the natural recoil/spring back should be used to maximum effect (figure 66a, 66b).
8. Consideration should always be given to the position of the feet. The range finder slides into position, the counter is fired, and the boxer moves away **at speed** out of punching distance.

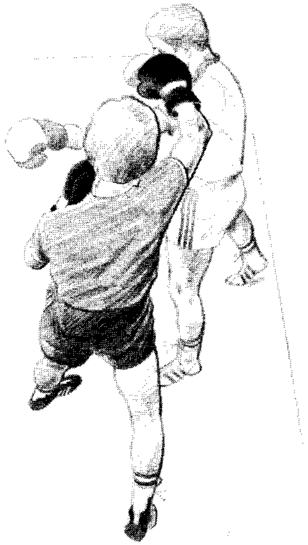
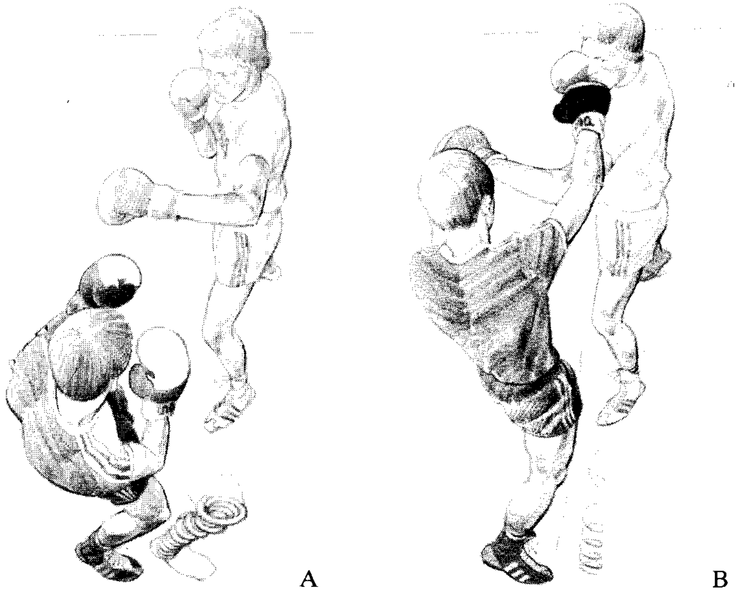


Figure 65. Countering outside line of vision

Figures 66A and B. Countering from recoil position.

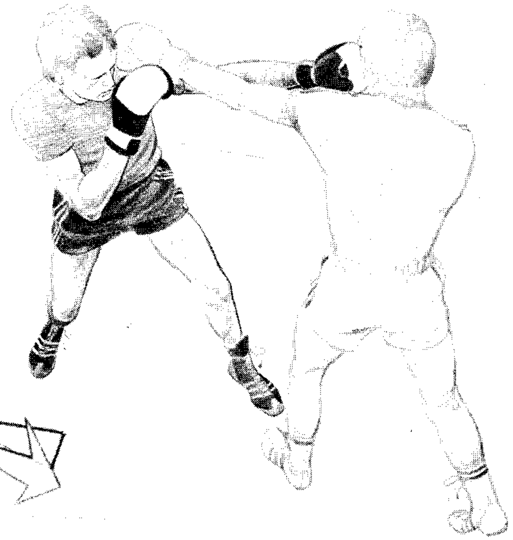

A

B

Variations of counters may be explored in controlled sparring. The coach can create a series of 'skill learning' situations, albeit in the first place artificially, where the boxer can gain confidence in each counter. Gradually the sparring can be widened to include a variety of sparring partners who will create different skill learning situations; situations which challenge the boxer to develop the skill of counter-punching, and selecting the most effective counter for the opening created.

Essential Counters

Figure 67. Countering with jab to the head, using free hand.



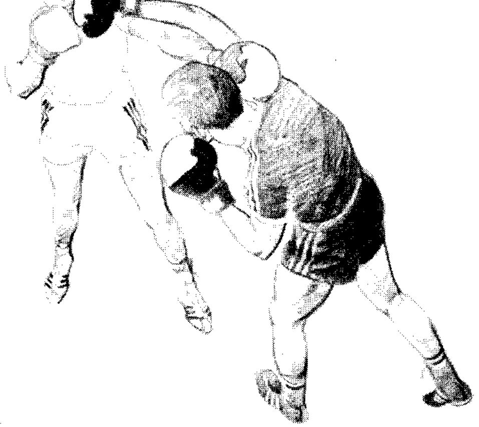


Figure 68. Countering with straight right to the head.

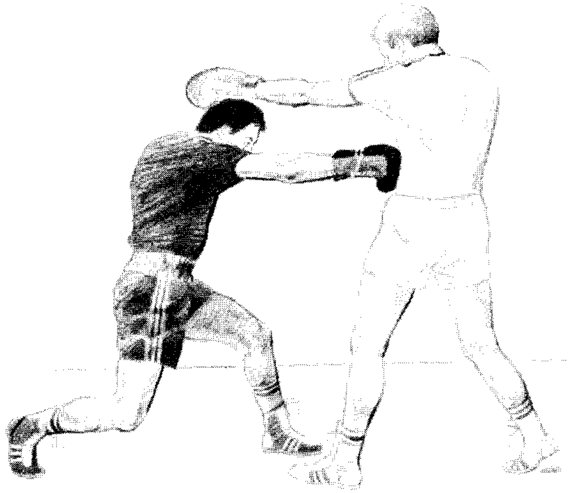


Figure 69 *(above)*. Countering with straight right to the body.

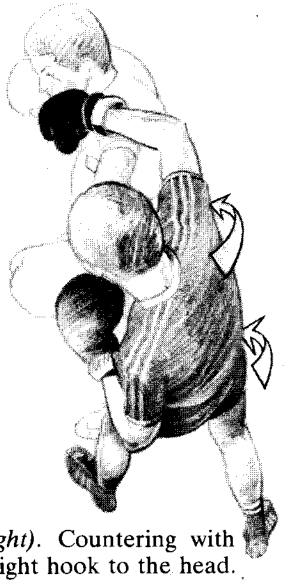
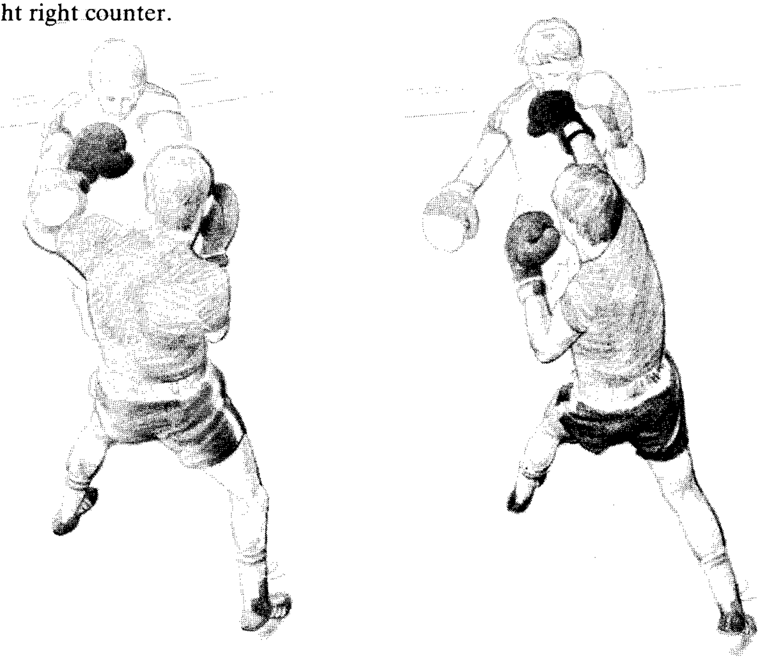


Figure 70 *(right)*. Countering with right hook to the head.

Figure 71 *(below)*. Wedge block followed by straight right counter.



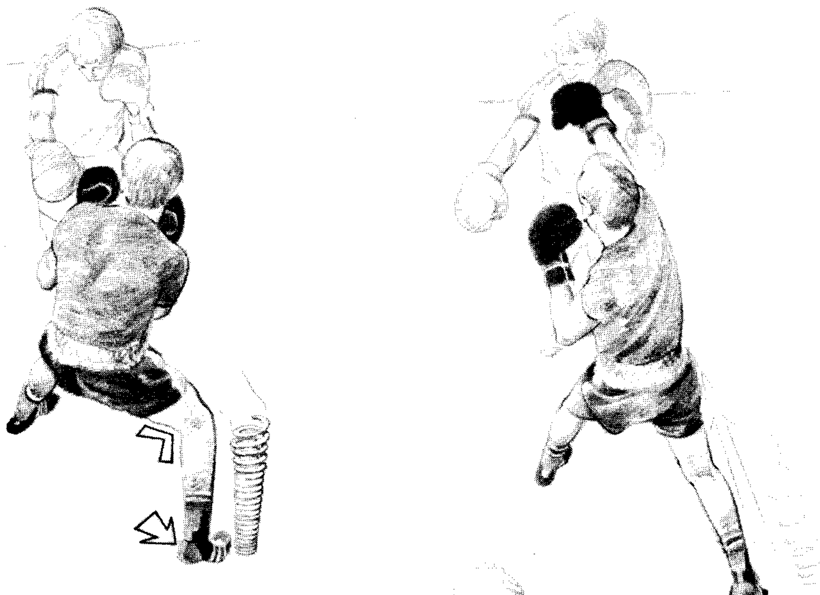


Figure 72 *(above)*. Lay back and counter with straight right.

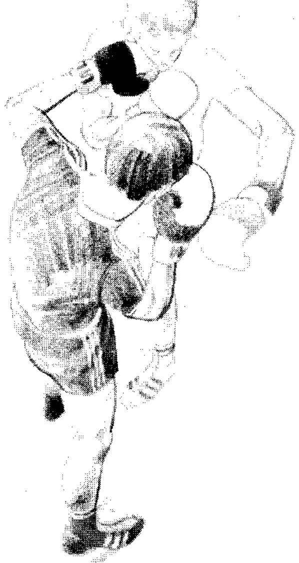


Figure 73 *(right)*. Forearm block followed by left hook counter.

A comprehensive syllabus of possible counters would contain the following – based upon the punches and defensive techniques dealt with earlier:

SELECTED COUNTERS for Orthodox Boxers

KEY					
J	Jab	LH	Left hook	RU	Right uppercut
H	Head	LU	Left uppercut	LC	Left cross
B	Body	SR	Straight right	RH	Right hook

PUNCH	DEFENCE	COUNTERS
Jab to Head	Blocking	J to H, J to B, LH to H, LU to H.
	Outside parry	J to H, J to B, LH to H.
	Inside parry	J to H, LH to B, LH to H.
	Push away (Push back)	J to H, LH to H, SR to H.
	Slip outside	J to H, J to B, SR to H, RU to B, RU to H.
	Slip inside	LH to B, LH to H, LU to H, SR to H, LU to B.
	Lay back (Spring back)	J to H, LH to H, SR to H, RU to H.
	Ducking	J to B, SR to B.
	Rolling (inside to out)	SR to H, RH to H.
	Rolling (outside to in)	LH to H, LC to H.
	Step across	SR to H, RU to H, RH to H, LU to H.
Jab to Body	Elbow block (left)	SR to H, RU to H.
	Elbow block (right)	J to H, LC to H.
	Outside parry	SR to H, RH to B.
	Inside parry	J to H, LH to H, LU to H.
	Push away (Push back)	J to H, LH to H, SR to H.
Straight Right to Head	Wedge block	SR to H, RU to H, RH to H.
	Ducking	J to B, SR to B.
	Outside parry	SR to H, SR to B, RH to B.
	Push away (Push back)	J to H, SR to H, RU to H.
	Lay back (Spring back)	J to H, SR to H, LH to H, RU to H.
	Stop	SR to H, RU to H.
	Shoulder block	SR to H, RH to B, RU to H.
	Slip outside	LH to B, LH to H.
	Slip inside	RH to B, RU to H, SR to H, SR to B.
	Rolling (inside to out)	LH to H, LH to B, LC to H.
Straight Right to Body	Elbow block	SR to H, RU to H.
	Inside wedge	SR to H, RU to H.
	Outside parry	J to H, LH to H, LH to B, LU to H.
	Push away (Push back)	J to H, SR to H, RU to H.
Left Hook to Head	Forearm block	J to H, J to B, LH to H, LU to H.
	Inside wedge	J to H, LH to H, LU to B.
	Ducking	J to B, SR to B.
	Lay back (Spring back)	J to H, SR to H, LU to H, RU to H.
	Push away (Push back)	J to H, SR to H, LH to H.
Left Hook to Body	Inside wedge	J to H, LH to H, LU to H.
	Elbow block	J to H, LH to H, LC to H, LU to H.
	Push away (Push back)	J to H, LH to H, SR to H.

PUNCH	DEFENCE	COUNTERS
Uppercuts to Head	Lay back (Spring back)	J to H, SR to H, LH to H, RH to H.
	Push away (Push back)	J to H, SR to H, LH to H.
Uppercuts to Body	Elbow block – right elbow	J to H, LH to H, LC to H.
	left elbow	SR to H, RH to H. RH to B, RU to H.
	Inside wedge – left arm	SR to H, RU to H.
	right arm	J to H, LH to H.
Right Hook to Head	Lay back (Spring back)	J to H, LH to H, SR to H, RU to H.
	Ducking	SR to B, RU to H, LH to B.
	Push away (Push back)	J to H, SR to H.
	Wedge block	RH to H, SR to H, RU to H.

4

ADVANCED TECHNIQUES

Having gone through the basic punches with a boxer, the coach has only begun to develop his technical make-up. Each basic technique has many variations which should be introduced when the orthodox technique has been grooved. Not only has the coach to decide 'when' to introduce such variations, he also has to decide 'to whom'. Confusion will arise if the variations are attempted too soon. For some boxers the time will never arrive. Their innate ability sets its own ceiling.

All variations must conform to the mechanical principles underlying all punching techniques and the points specific to the technique being developed. To be effective not only has the coach to clearly understand the principles involved, but it is vital to give insight to the boxer when practising the variations. This involves the coach in simulating contest situations which require work on the variations. The nearer the practice is to a realistic situation, the greater the chance of transfer from the training to the contest situation.

The relative positioning of two boxers in a contest will be in a constant state of change. Effective movement will revolve around two distances, thinking distance and striking distance.

Thinking distance is the distance a boxer will judge to be his optimum from which to launch an attack, counter, or counter-attack. It represents the ring arc outside the striking distance of the opponent where the tactical decisions are taken, the openings made or waited for.

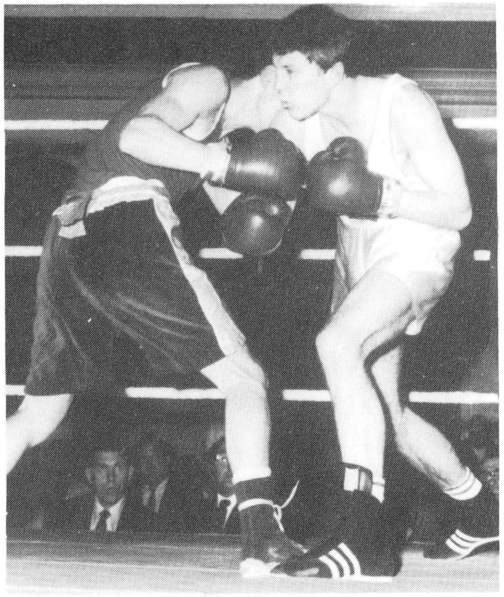
Striking distance is the hitting distance into which a boxer moves once having decided which technique to use. He then must move his range finder, i.e. his front foot, into effective striking distance. The aim should be to keep his own target area out of the striking distance of the opponent whilst being able to strike the opponent by pivoting over the front foot. Speed is vital, both in moving in and moving out.

Having attained the striking distance, the build, style, coordination and repertoire of vocabulary, will largely determine the punches thrown by each individual boxer. There are essentially three classifications of the striking distance: 1. Short range. 2. Medium range. 3. Long range. The difference in ranges relates to the distance between the boxers as the punch is thrown. Photographs 23, 24, 25 show the approximate distances involved. Variables such as length of arm, relative movement of boxers, make specific distances impossible, only approximate.

Long range – punches delivered at or near maximum extension of the arms.

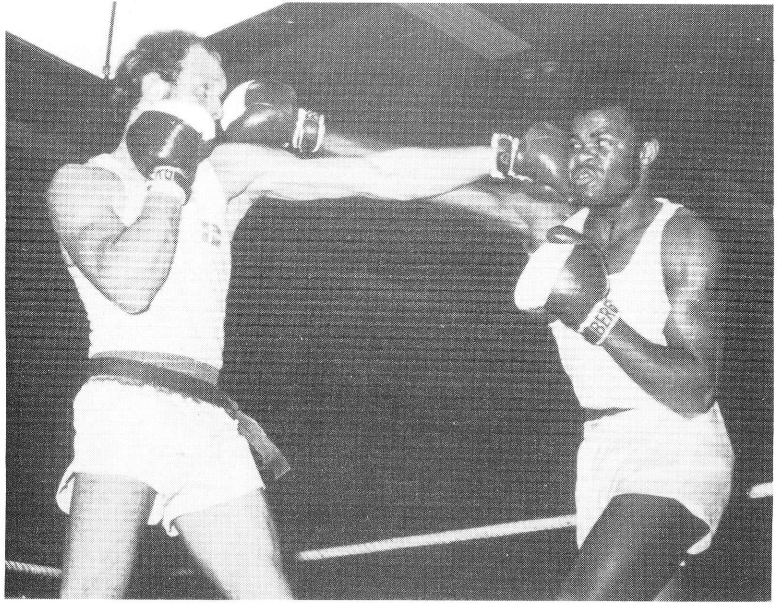
Medium range – punches delivered from forearm's length to near maximum extension.

Short range – punches delivered with both contestants at forearm length away.



Photograph 23.
Short range.

Photograph 24 *(above)*. Medium range and Photograph 25 *(below)* Long range.



FOOTWORK VARIATIONS

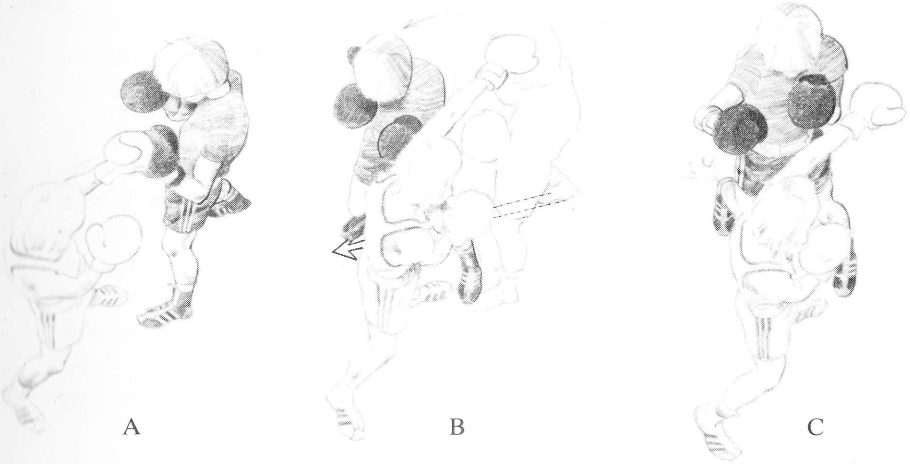
The Side Step

Every boxer will need to switch direction quickly during a contest either as a defensive measure, or to change his line of attack – to come from outside the line of attack of his opponent. It could be that frequent changes in direction will help break his predictability – keeping his opponent guessing. Near the ropes he may need the switch in direction to negate the inside work of his shorter opponent. In such a position movement backwards is impossible, hence a fast switch of lateral movement is desirable, i.e. sideways.

Method one (figure 74)

The right leg steps off to the right at speed. It will be necessary to step forward a few inches to ensure that the right hand is still in striking distance. Body weight is transferred to the right leg and a counter, or counter combination, can be launched with the straight right to the head or even right hook.

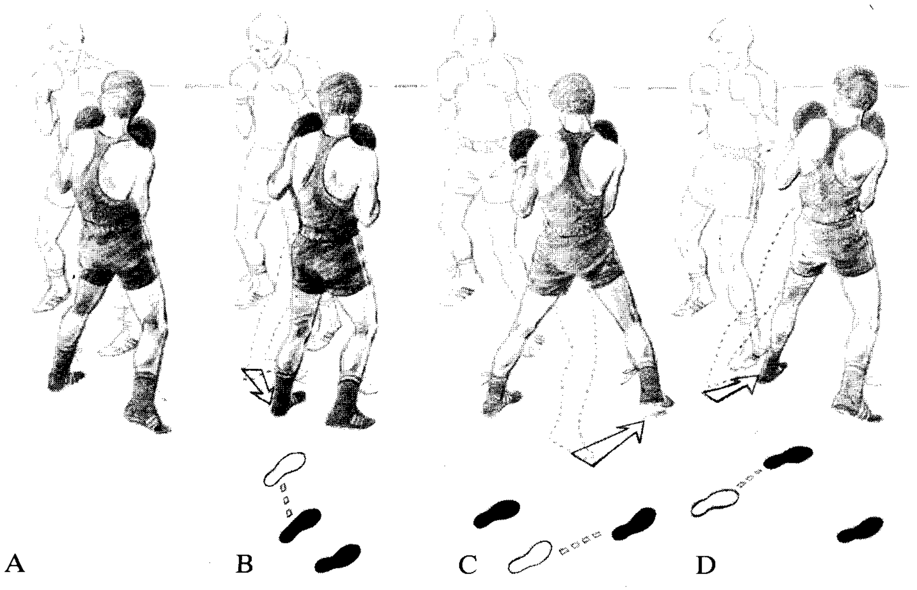
Figure 74. Sidestep.



Method two (figure 75)

Front leg slides towards rear right leg, rear leg steps off to the right. Body weight is transferred to the right leg as the left leg steps forward to resume its range finding role. The attack will then be launched from a different angle. The hands are held high throughout ready to counter-attack.

Figure 75. Sidestep – alternative.



The Glide

Some ring situations will require a boxer to get away quickly from the ropes in either direction. A shorter opponent will perhaps try to move his opponent back to the ropes or into a corner, before launching a cluster of counters. Then his opponent cannot move backwards and his movement is restricted by the ropes. The boxer in the defensive position must then have the ability to move either left or right, depending on the artillery and precise position of his opponent, into a 'safe thinking distance'. As it is largely a purely defensive move, the glide should be used with discretion.

Glide to the right (orthodox boxer)

The left foot slides backwards and *simultaneously* the right foot slides forward and outwards, retaining the base to hit

with either hand. The chin is kept tucked in, gloves are held close to the face, elbows in to the side, to guard against the danger of moving on to a hook from the opponent (figure 76).

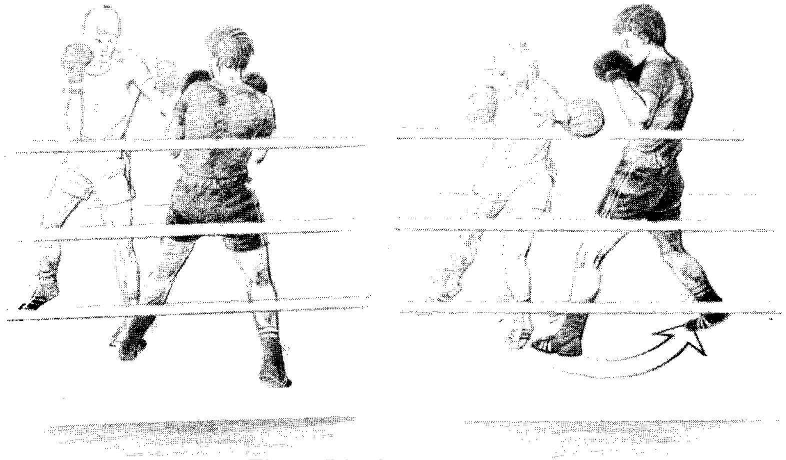


Figure 76. Glide – right.

Glide to the left

The left foot slides out wide to the left as the right foot shifts to the left at speed. To enable a counter-attack to be launched the foot movements describe an arc as figure 77 indicates. Again, a high guard is needed as a secondary defence.

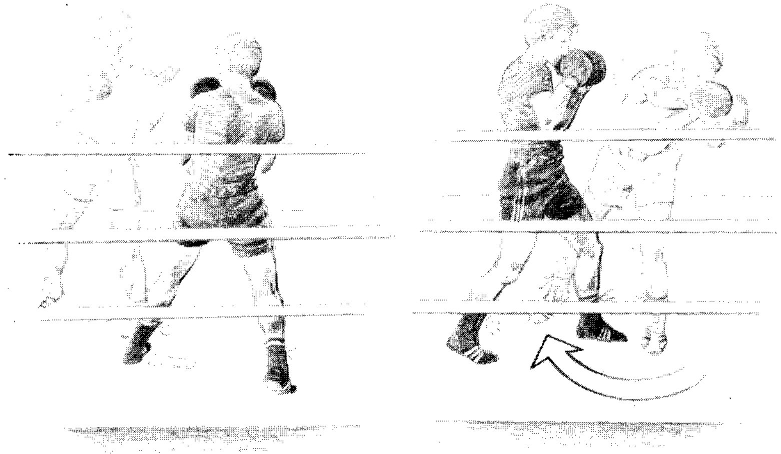


Figure 77. Glide – left.

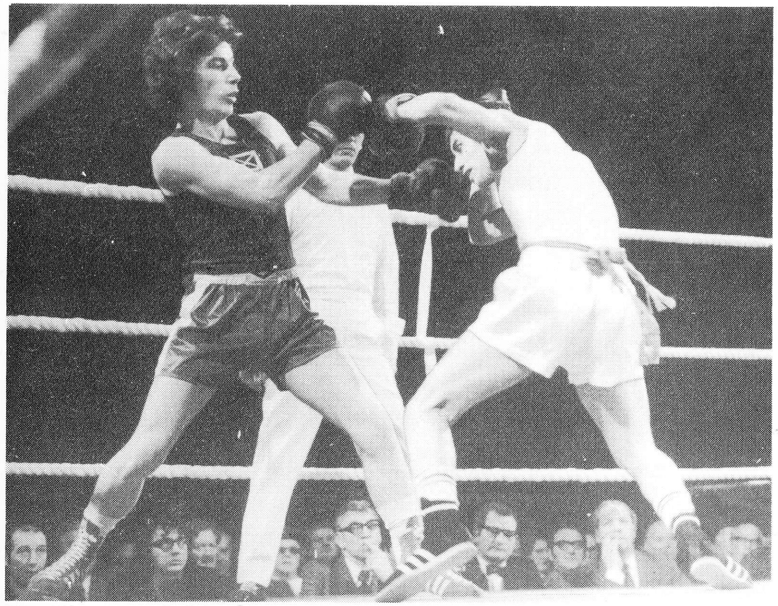
VARIATIONS OF THE JAB

The importance of the left jab to all orthodox boxers, or the right jab to all southpaws, has been stressed. Its place as the most important punch in boxing is indisputable. From walking into a gymnasium for the first time to entering the international arena, the grooving of a point scoring jab must be an on-going process from which the coach never tires. He motivates his boxers accordingly, stressing the vital speed, accuracy and snap. A shorter boxer who relies on power punching uses the jab to measure the distance for the explosive rear hand to follow and to create openings. Variations in speed and power should be practised by all boxers, but these are by no means the only roles which the jab can play in a boxer's repertoire. Development of the skills programme should allow for exploration and experiment of the jab in other roles. The following could be explored:

1. Its value in keeping an opponent off balance – particularly against a strong puncher who needs to set himself before launching an attack.
2. As a defensive weapon it gives a boxer the means of taking the sting away from an attack so that he can perhaps gather his composure before regaining the initiative.
3. In a diversionary role the jab keeps the opponent guessing perhaps being used to impede the opponent's line of vision.
4. When used as a feint it affords a platform on which an attack can be made involving switch of attack, change of punching hand, thus drawing the opponent's attention to a false cue.
5. To gain the inside position for short range punching the short jab or speed jab plays a crucial role (photograph 26).

Varying the Left Hook (for orthodox boxer)

Both the *angle* and the *range* of the left hook can be varied. Figure 78 shows the position of the fist inside the glove as the left hook lands in different positions. It can be seen that the fist rotates as the curved target dictates. At all points of impact



Photograph 26. Speed jab here used to gain the inside position.

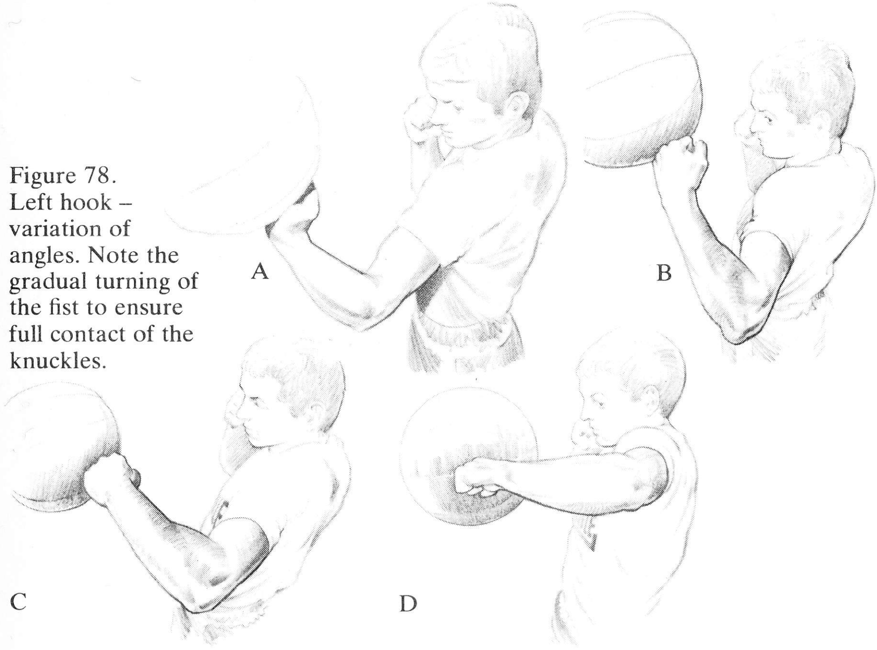
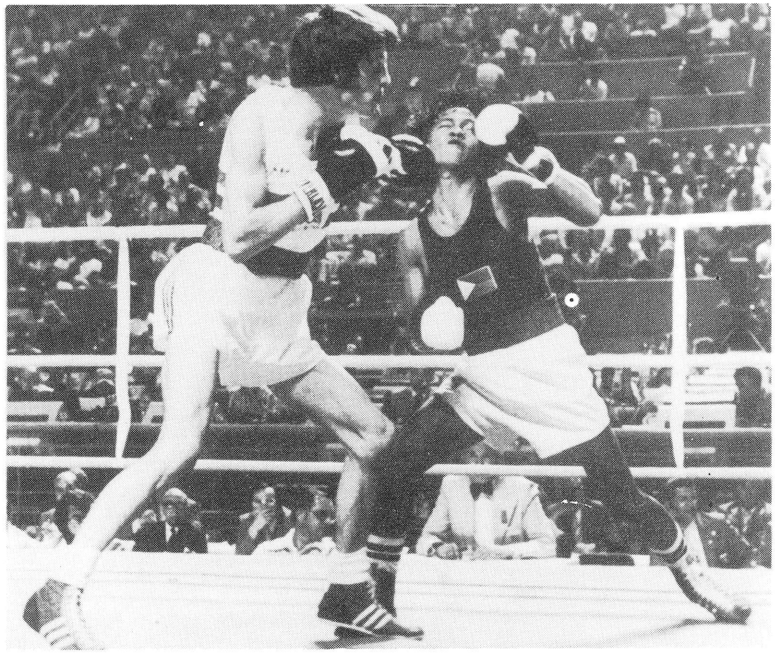


Figure 78.
Left hook – variation of angles. Note the gradual turning of the fist to ensure full contact of the knuckles.

the knuckles are solidly in contact with the target area. Though each individual boxer will develop his favourite left hook, all the positions shown are examples of sound left hooks. Variations in angles do not stop there, in addition to the varied left hooks shown are the positions between. The glove turns according to the position of the target aimed for.

Variations in the distance or the range of the left hook are also possible (photograph 27). However, application of the mechanics of punching must be closely followed. Power comes from the explosive rotation of the left side begun by a drive from the left foot. The arm is relaxed and snaps through after the body has reached the centre line. Figures 79, 80, 81 show short, medium and long range left hooks to the head.



Photograph 27. Medium range left hook used to good effect against a committed southpaw opponent.

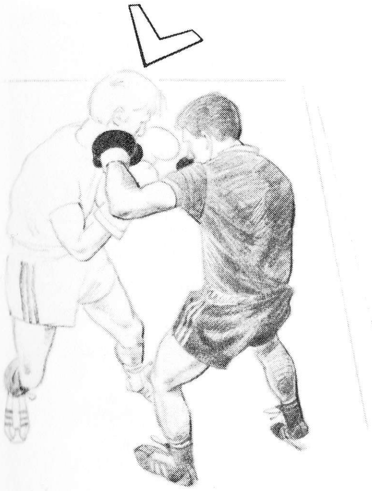


Figure 79. Short range left hook.

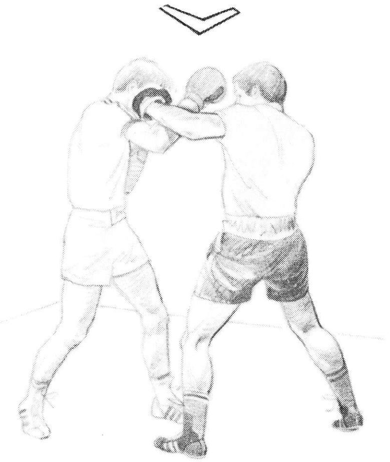


Figure 80. Medium range left hook.

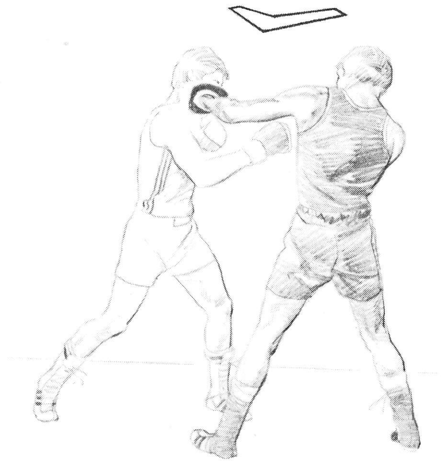
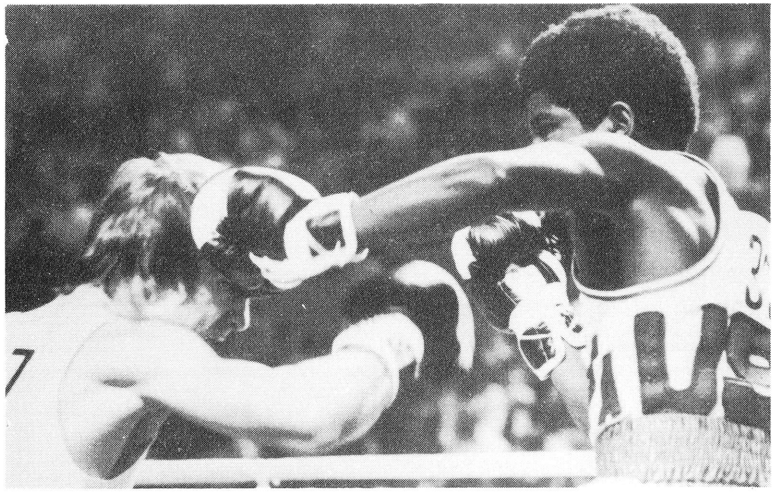


Figure 81. Long range left hook.

It should be noted that with the long range left hook – an especially effective counter or attacking punch, the wrist has to be turned so that the palm faces the ground (photograph 28). Otherwise the tendency must be to hit with the inside of the glove – and thus incur the wrath of the referee.



Photograph 28. Long range left hook to the head with the wrist beginning to turn just before impact.

Once a basic left hook has been grooved, the coach should get his boxers to explore all possible variations of angles and distances. The role of the left hook as a point scorer has to be appreciated. Otherwise the whole of a contest could slide by with a boxer waiting for the 'one perfect opening' to throw his one left hook. Dozens of scoring opportunities may well have passed unperceived. So, not only has the boxer to be taught the many variations, but he also must be coached in perceiving cues – throwing the appropriate punch at the appropriate time (figure 82).

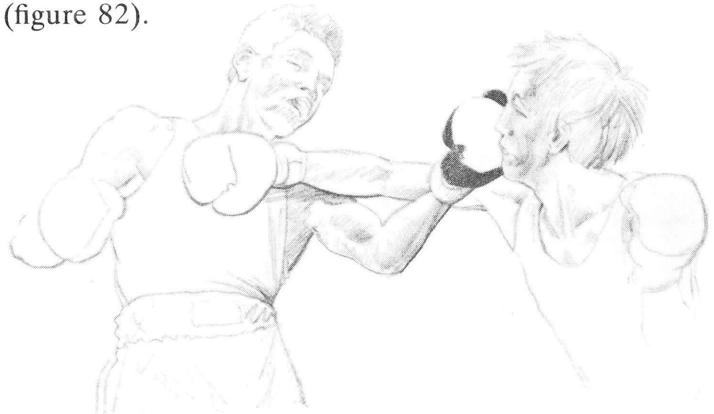


Figure 82. Improvisation with left hook.

Variations with the Right (for orthodox boxers)

Using experimentation with angles and distances a similar pattern emerges with the right hand. A straight comparison between the left hook and the straight right is unfair, as the left hand of the orthodox boxer has the inbuilt advantage of being the hand nearest the opponent. However, as with the left hooks, the right can be varied both in distance and angle thrown. Figures 83, 84 show examples of the angles possible with the right to the head. Use of short, medium and long range striking distances will also help create an understanding of a basic structure which the coach can develop to produce many variations. With each the mechanical principles in hitting should be closely followed.

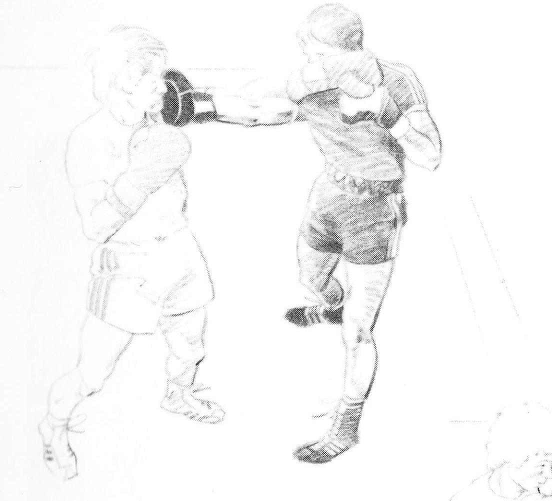


Figure 83. Varying angle of right cross.

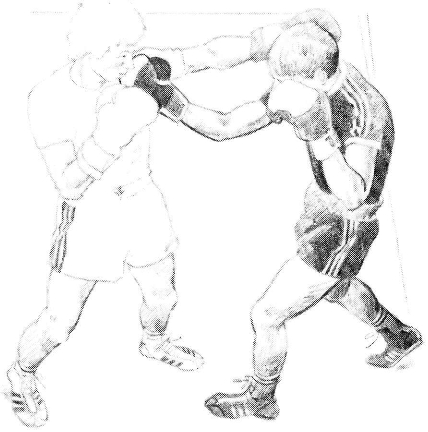


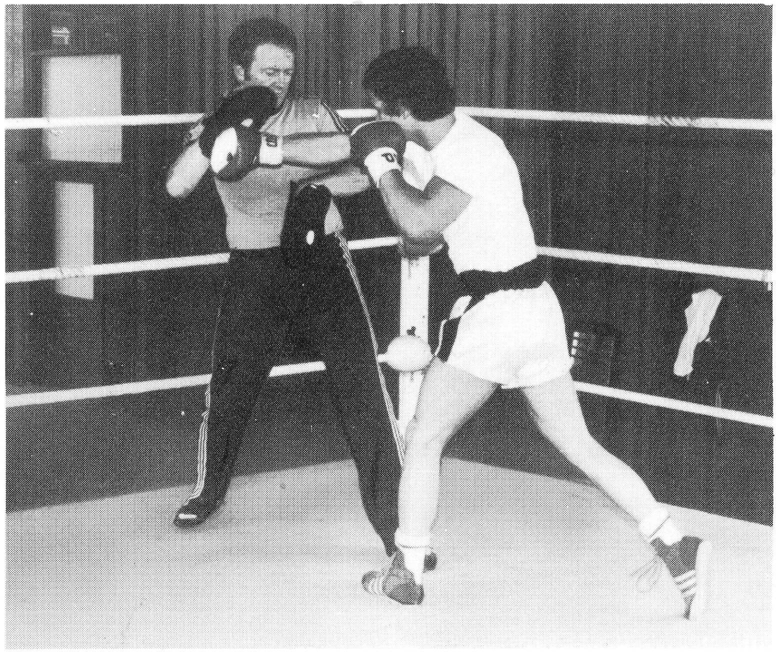
Figure 84. Varying the right from an inside position.

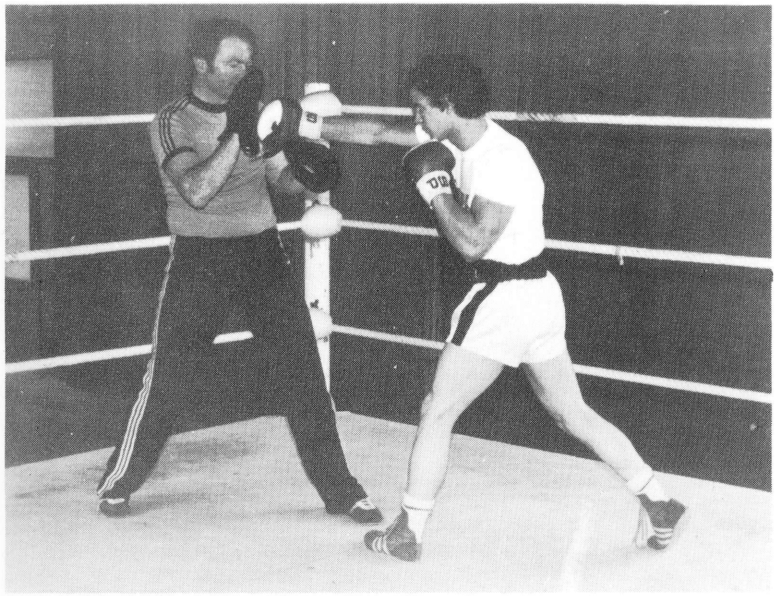
It follows that the straight right should also be used as a scoring punch as opposed to a 'power' hit (photographs 29, 30). Again the coach should create repetitive skill challenging situations which –

(i) give insight to the boxer as to the precise application the variation should have in a contest.
(ii) motivate the boxer to strive to master the variation.
(iii) give success and confidence once the desired variation is used properly in practice.

Such a situation would be when the opponent moves back to the ropes. As he slides along to his left an opening might occur to land a fast straight right. With the appropriate training, the boxer would have been programmed to perceive the cue and land a point scoring shot, when an explosive right was not possible.

Photograph 29. Straight right being used as a power punch.



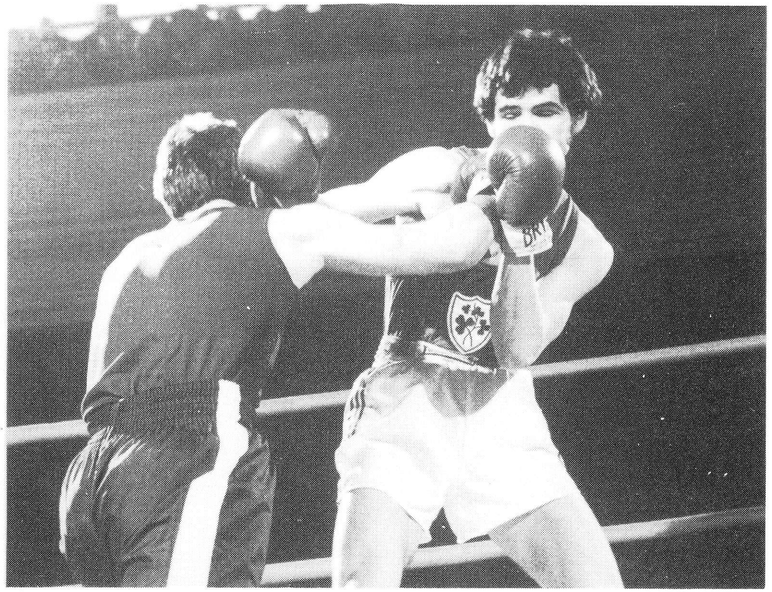


Photograph 30. Straight right being used as scoring punch (note the contrast in commitment of body weight).

Photograph 31, figures 83, 84 show variations in the right of the orthodox boxer being used effectively as counters. The added value is that the counter is thrown outside the line of attack of the boxer leading and his body weight adds momentum to the punch on impact. This is the essence of an explosive right, the timing of the punch.

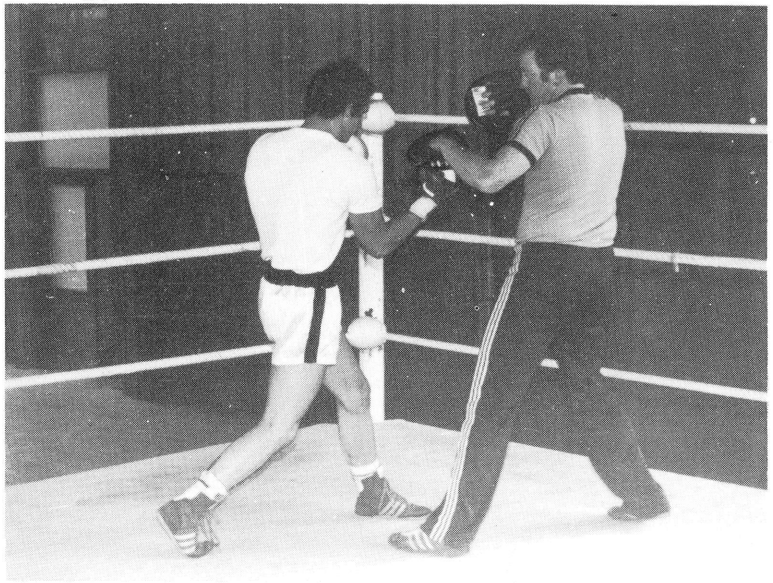
Variations of Uppercuts

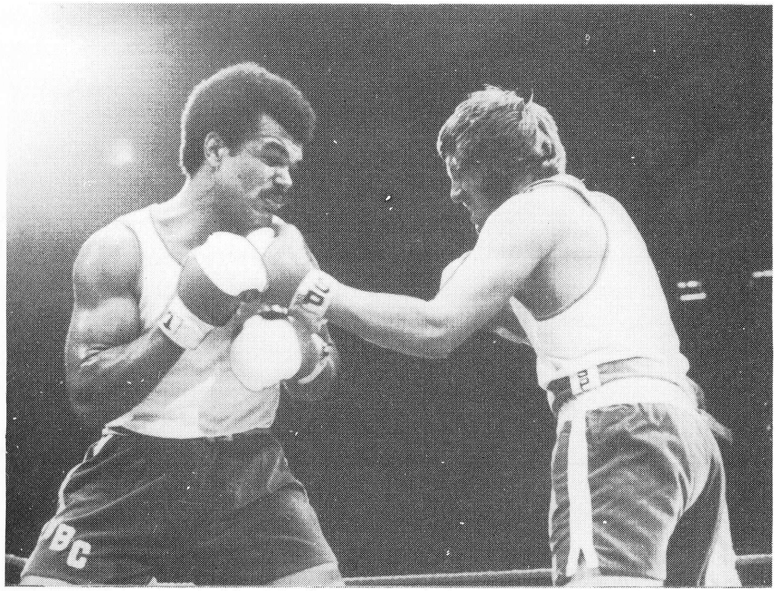
By definition, an uppercut is limited to one line of attack – that is, it must be thrown perpendicular to the floor. Any deviations from this angle produces a hook. What can be varied with devastating effect is the distance over which an uppercut is thrown both as a counter or as part of a combination. Variations over all three distances are possible – short (photograph 32), medium (photograph 33), long (figure 85). As can be seen from the illustrations the angle formed between forearm and upper arm must increase the farther the punch travels.



Photograph 31. Straight right to the head used as a counter against the southpaw lead.

Photograph 32. Short range right uppercut. Note position of right coaching pad ready to receive left hook.





Photograph 33. Medium range left uppercut to the head.

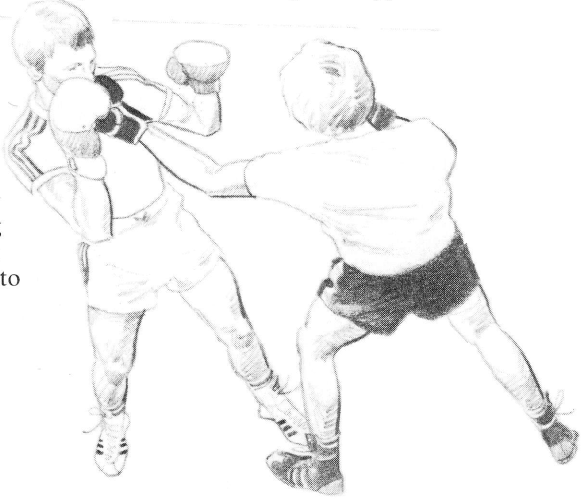


Figure 85. Long range left uppercut to the head.

Quality of Punching

With all punching techniques, from the fundamental to the advanced, quality of punching is vital. Once the basic technique programme has been covered, the fundamental techniques groomed, the coach should begin to give special emphasis to the quality of punching. Whilst one must accept the limitations nature imposes on each boxer in terms of limb speed, co-ordination, etc. few boxers ever realise their hitting power. Though one would accept that explosive punching is largely a natural skill, by analysing the factors involved a coach can work on the specific ingredients the individual requires to increase the quality of his punching (figure 86).

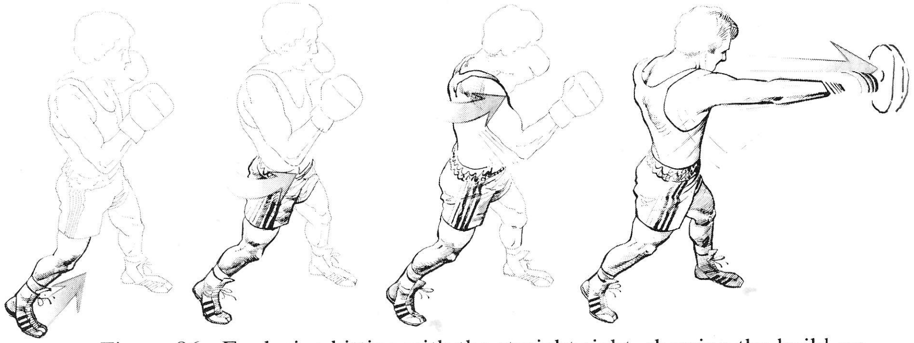


Figure 86. Explosive hitting with the straight right, showing the build-up of power.

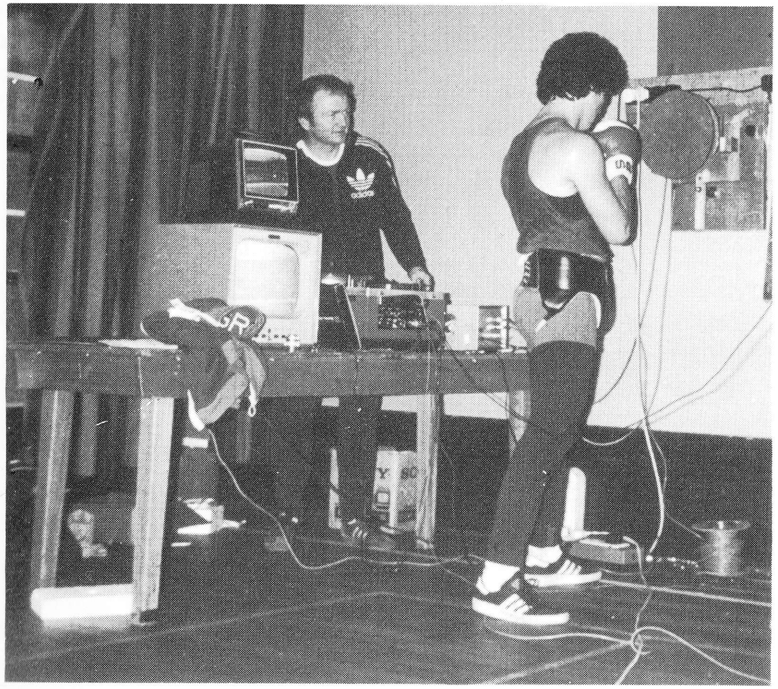
No matter how sound the punch is mechanically, its effectiveness will depend on the following factors:

1. The speed with which it is thrown.
2. The force which generates the punch.
3. The accuracy of contact on the target area.
4. The timing of the delivery.
5. The judgement of distance between glove and target area.
6. The acceleration of the punch.
7. The degree of relaxation present.

Each of the factors listed should represent a challenge to the coach to improve a boxer's quality of punching. The missing ingredients or factors lacking need to be isolated. Then the coach has to decide on what type of training will help his boxer improve. Georges Carpentier used to punch a knot in a piece of string to help develop judgement of distance. Certain pieces of gym equipment will aid development of the factors listed, though over-use of some pieces can impair progress. Thus, a gymnasium routine involving too many pieces of static equipment which require little foot movement, will tend to stultify the boxers by neglecting footwork.

Photograph 34 shows a member of the ABA's National Squad working on the SPI machine (Speed, Power, Indicator). This machine basically records speed of punch and power of impact. It gives a quantitative feedback to the boxer in terms of these two aspects. Gradually, the boxer needs the external feedback less as he can adjust his own variation by kinaesthetic sensitivity. The machine enables him to get the 'feel' of the full range of power and speed possible in punching. He can then learn to adjust the force-speed ratio when the appropriate opening occurs – as in the variation of the right hand already mentioned.

Photograph 34. Scientifically measuring speed and power of punch.



Bag and ball work should bear most of these factors in mind. The heavier the bag, the more massive and static the target. Accuracy of punching can be neglected whilst force is improved. Light maize balls call for accuracy and speed – especially when using combination punching. Targets painted on lighter bags are useful as long as the target can be adjusted to the height of the boxer using the equipment. The use of coaching pads is especially important. With proper use the coach can present a realistic target to the boxer requiring accuracy and speed, whilst giving individual coaching to each boxer on the quality of punching, e.g. timing, judgement of distance and acceleration.

The acceleration of the punches deserves special attention. All punches should possess this vital quality – no matter what variation is being used. A punch should not travel at a uniform rate – but rather should gather speed and finish with snap. The key to the acceleration is the arm remaining relaxed until the last few inches of the punch (figure 87). The power originates from the leg drive, picks up the whip of the trunk, shoulder and finally the arm adds its impetus over the last three–four inches just before landing. The comparison to a 'whip lash' action is valid.

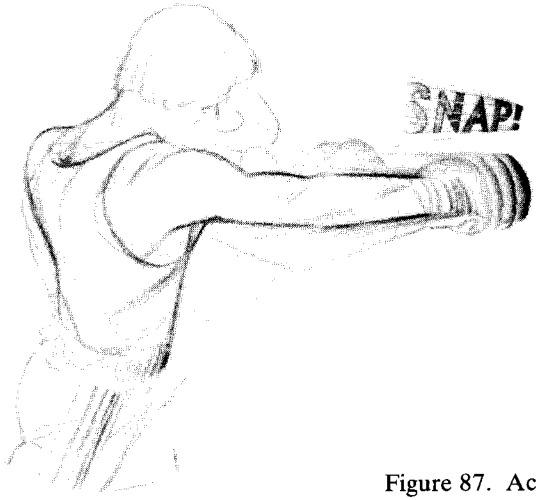


Figure 87. Acceleration in punching.

COMBINATION PUNCHING

As soon as a boxer acquires the basic jab he will want to use it as part of a combination sequence. Indeed, this should be encouraged by the coach in the early stages of learning. Initially, practice should emphasise two, then three punch combinations. The more complex combinations have to be programmed according to the individual's needs. Innate ability, general intelligence and level of co-ordination are variables which will restrict the complexity of the combinations undertaken.

There are general principles underlying the whole concept of combination punching which the coach should understand:

1. Power should be equally distributed between the punches, with added 'snap' in the last of the sequence.
2. Feet should adjust the body position forward or sideways according to the punches used and relative position of the opponent. Hence, the 'range finding' role of the leading leg is maintained.
3. An odd numbered combination is to be preferred to an even numbered as the target is thus closed with the final punch.
4. All combinations should be thrown at speed with relaxation being emphasised to aid the rhythm and tempo of the sequence.
5. Combinations thrown as a counter are especially effective as the opponent's own body weight will aid impetus.
6. Combinations involving switch of attack from body to head are especially effective as the legs can assist the drive upwards.
7. In medium and short range combinations, switch of attack from hooks to uppercuts is very useful especially when body weight is transferred to alternate legs.

A combination can comprise any permutation of the basic punches already analysed. Some combinations are more common than others as they appear to be more obvious and easier to learn. A coach should be aware of the requirements of the individual's style before he presents the appropriate combination sequence. But this should never be an end in itself. The boxer should be encouraged to work-out developments for himself which suit his build, speed of reaction, and style. Once one considers the variations possible in angles of all the basic punches over the short, medium and long range – then the permutation of combinations is almost endless. Each boxer should be challenged to explore as full a repertoire as possible before deciding on those combinations which he feels to be best for him. The following is but a sample of the range possible, with indications of further developments where appropriate. It is *not* by any means a fully comprehensive vocabulary.

Selected Combination Punches involving the Jab (of the orthodox boxer)

1. Double jab to the head

As the first jab lands the front foot slides forward to be in range for the second jab. The second jab is thrown from the half-way return distance of the first jab. Speed is essential and the right hand remains high throughout.

2. Speed jab to the head (photograph 26)

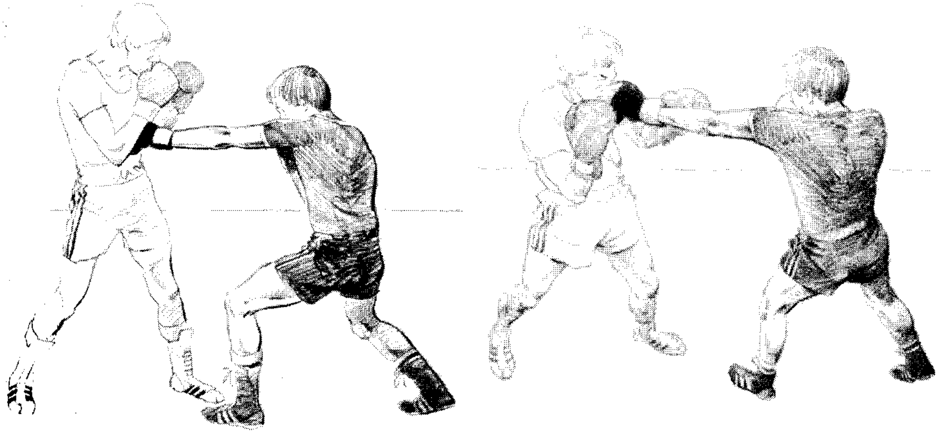
Twos, threes and even clusters of speed jabs can be thrown, from medium or short range. The left elbow remains high throughout as the right shoulder dips forward. Power comes purely from the arm and the transfer of body weight forward. Hence the front foot must slide forward at the same speed as the jab.

3. Double jab to the body

This combination sequence is especially useful as a counter or for gaining the inside position for short range work. The left foot slides at speed, chin remains tucked in behind the left shoulder and the right glove is held high. The drive is from the rear leg and a switch of attack from body to head is a highly effective development.

4. Jab to the body – Jab to the head (figures 88, 89)

The jab can be either a scoring punch or a feint, distracting the opponent from the switch of attack to follow. Extra drive comes from the straightening of the body for the second jab as the front foot slides forward.



Figures 88 and 89. Jab to the body – jab to the head combination.

5. Jab to the head – Jab to the body

The role of the first jab is primarily as a feint. The rear leg bends as the body leans forward to snap; a second jab to the body. A straight right to the body could continue the combination or a long range uppercut could be whipped through to the chin.

Selected Combinations involving the Left Hook

1. Jab-step-hook

The left jab measures the distance to the target. The front foot slides quickly in and an explosive pivot of the hips pulls the left hook through to the head. As with the double jab to the head, the first jab returns to a half-way position from where the left hook is thrown.

2. *Jab to the body – Left hook to the head*

The first punch can be a feint which distracts the opponent and leaves him more open for the left hook to the head, the front foot sliding in before the left hook lands. The angles of the left hook thrown will depend on the position of the opponent. In training different angles should be practised as part of this combination.

3. *Jab to the head – Left hook to the body*

Again, the role of the left jab is as a feint, followed by a dip of the left side as the front foot slides in and the left hook drives through the target.

4. *Left hook to the body – Left hook to the head* (photographs 35, 36)

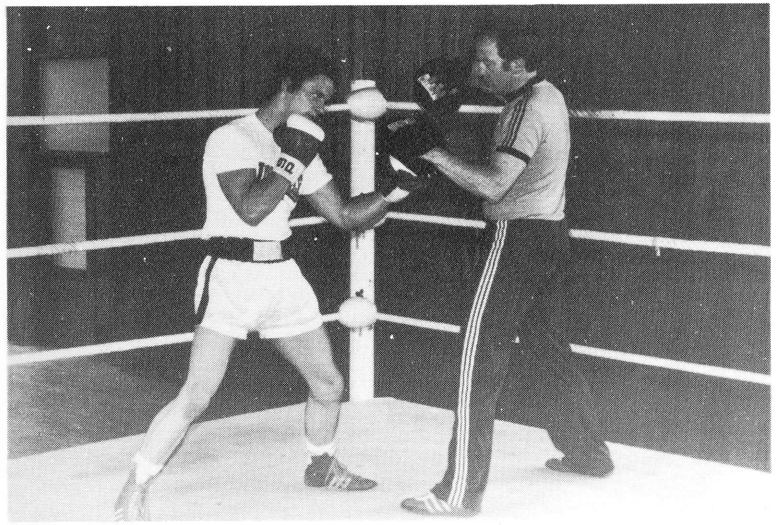
If not preceded by a jab, this combination is better thrown as a counter. Having slipped inside the opponent's jab, the first left hook is thrown *INSIDE* his defence. Speed of recoil of the left shoulder is vital. For the second left hook the front foot slides forward as the legs assist the drive through the target. This counter combination is also particularly effective having slipped outside a straight right to the head. Then, the left hook would be thrown *OUTSIDE* his defence.

5. *Left hook to the head – Left hook to the body*

As a counter, the combination can follow a slip inside or outside the opponent's jab, with body weight committed to the right leg. A short inside left hook is driven to the chin. A fast pull-back of the left shoulder is followed by the left hook to the body from a dipped position.

6. *Jab and left hook to the body – Left hook to the head*

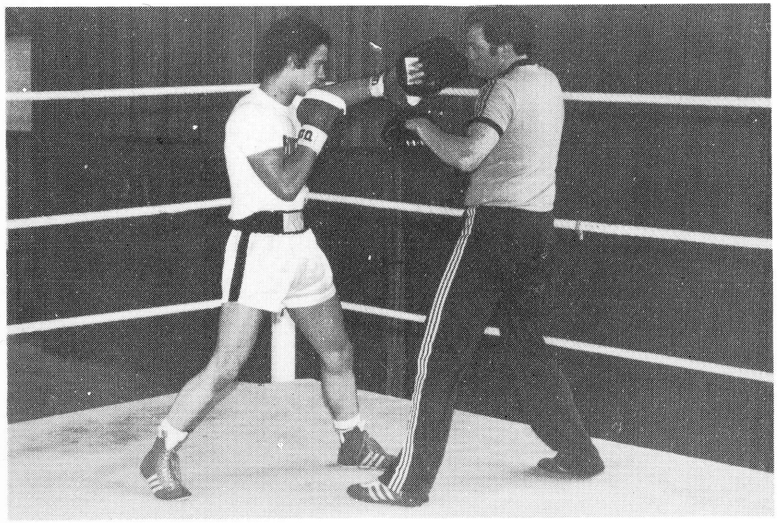
Ideally suited to a smaller boxer at a height disadvantage the combination begins with a jab which measures the distance to the target. The front foot slides at speed to position itself for the hook to the body. With the left shoulder dipping to the left, the left hook is whipped to the solar plexus and then to the head. Leg drive would increase the power of the punch to the chin and the angle of the second left hook should be varied according to the opponent's guard and body position.



Photograph 35.

Double left hook combination with switch of attack.

Photograph 36.



Selected Combinations involving the Right

1. Jab to the head – Straight right to the head (photographs 37, 38)

Known as the 'one-two', this very simple but effective combination is begun by the jab measuring the distance for the right to follow. Should there be too much force in the jab then the distance to the target will be increased for the right to follow as the opponent will be moved back. The right should be thrown with speed and accuracy at the exact spot measured out by the jab. There should be no movement forward of the back foot as the right leg drives the hips, shoulder through with the arm adding the acceleration over the last few inches. Careful attention should be given to the immediate return of the left after impact to a defensive position.

2. Jab to the head – Left hook to the head – Straight right to the head (photographs 39, 40, 41)

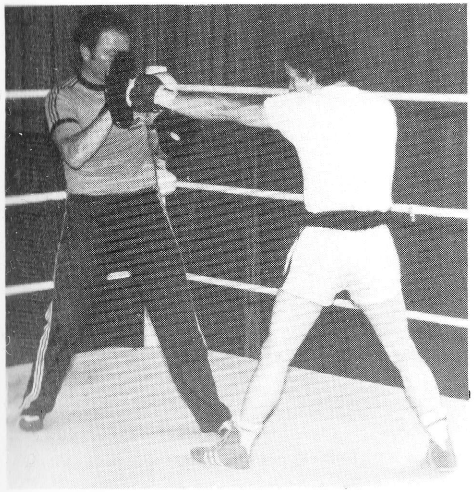
Again the jab's main function is to measure the distance rather than score. The type of left hook to the chin which follows the jab will depend on:

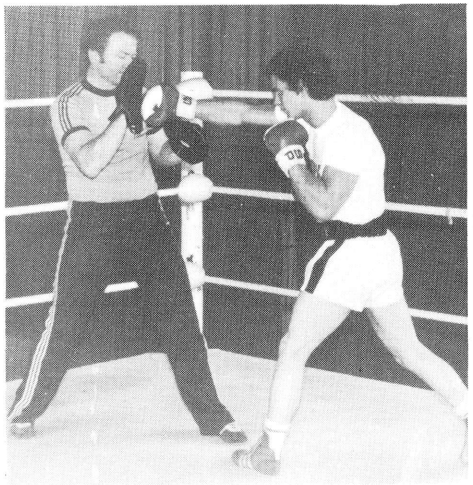
(*a*) the nearness of the opponent (short or medium range).
(*b*) the height, length of arms and position of the opponent's defence (variation of angle).
(*c*) the distance the left foot covers after the jab.
(*d*) whether it is thrown as an inside (between) or outside (around the guard) hook.

Body weight should be transferred by the left hook to the right leg. The straight right to the head utilises this transferred weight pivoting through with no further movement of feet being necessary.

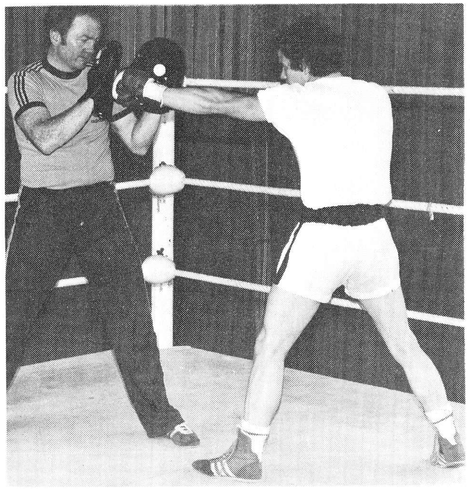
3. Jab to the head – Straight right to the head – Left hook to the body

The jab and straight right to the head follows the same pattern as the 'one-two' already described. In delivering the right, the body weight is transferred to the left leg. Then the left foot





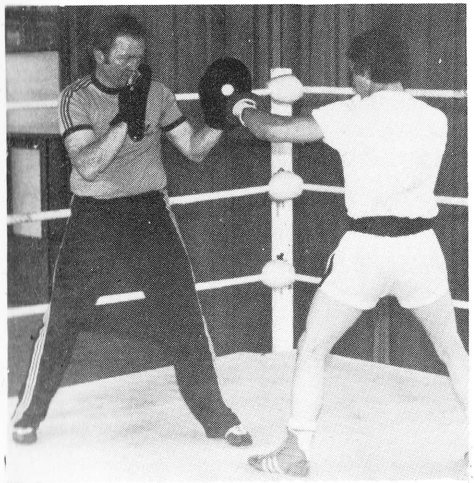
Photograph 37 *(above left)*,
Photograph 38 *(above right)*.
The 'one-two' combination.

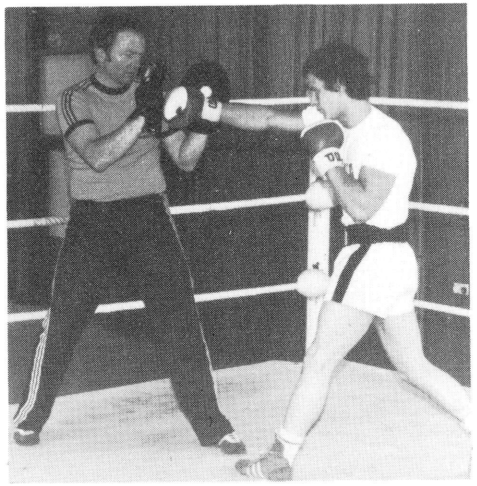


Photograph 39.

Jab – left hook – straight right to the head combination. Note the extra leverage gained by the right.

Photograph 40 *(below left)*.
Photograph 41 *(below right)*.





slides forward, the left shoulder is dropped and the hips pivot the left hook to the body.

4. *Straight right to the head – Left hook to the body*

Especially useful as counter to the left lead this counter combination involves a sideways and outward step (sidestep) with the right foot as the lead comes. Body weight is transferred to the right leg and the counter is launched from outside the line of the opponent's attack. The left foot remains in position to take the transferred body weight, drop the left shoulder and drive in the second part of the combination to the solar plexus.

A development from this combination is to add another straight right to the head.

5. *Left hook to the head – Right hook to the head*

This combination is especially effective at medium or short range. It is very useful for the short opponent with a height disadvantage. The type of left hook thrown depends on the punch to be countered, whether it follows a slip inside the opponent's lead or a roll under the straight right. The former requires a short inside hook, the latter is best countered with a left hook describing a wider arc and coming around the opponent's defence. In both cases the body weight will be transferred on to the right foot and the position naturally adopted for the right hook to the chin.

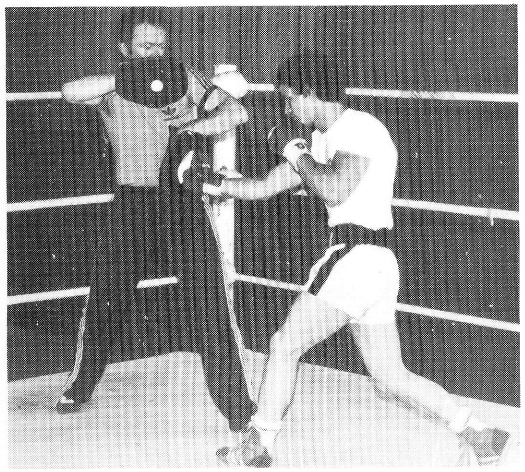
An excellent development from this combination is to add a left uppercut to the chin – or indeed a left and right uppercut. Then the switch in direction of the attack will cause the opponent problems.

6. *Left hook to the body – Straight right to the head*

Ideal as a counter combination against the jab, the left foot slides inside the opponent's foot position itself for a medium range left hook to the body. The shoulder is dropped and the hook is driven to the solar plexus. This leaves the natural line position of the body in a perfect launching position to come back with a straight right to the chin – thrown inside the opponent's left glove. A left hook to the chin is a natural sequel.

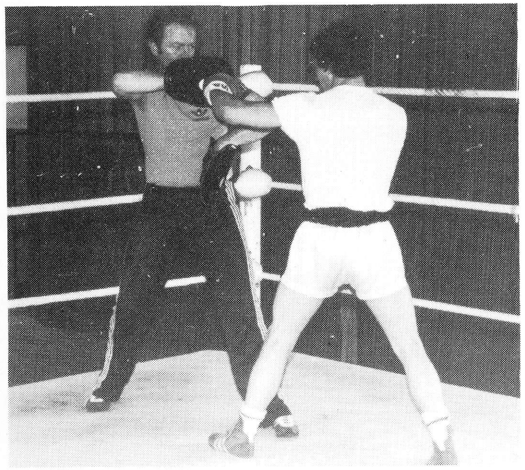
7. *Right hook to the body – Left hook to the chin* (photographs 42, 43)

A sidestep with the right leg takes the defender away from the opponent's lead and outside his line of attack. The steep right hook drives up into the solar plexus and the left hook continues the combination accelerating before impact. With the feet accurately placed, the body should be in a good position to continue the combination with a right hook.



Photograph 42.

Counter combination right hook to the body – left hook to the chin.



Photograph 43.

8. Double straight right to the head

Rarely does one see this combination being used. It requires a high degree of timing, speed of limb and balance. Thrown as a counter, or as a lead to break up the opponent's rhythm, it can be very effective. The first right is thrown as a point scorer, or to upset the opponent's balance. Following a lightning recoil of the right shoulder, the left foot adjusts its position for the more powerful second right to follow, with the right foot also moving in accordingly. A more complex skill follows if the boxer practises varying the angle of the second right hand. Hence, thrown as a counter combination, the first right hand can be thrown under the left lead and the second right hand thrown over.

Selected Combinations involving Uppercuts

1. Jab to the head – Right uppercut to the head

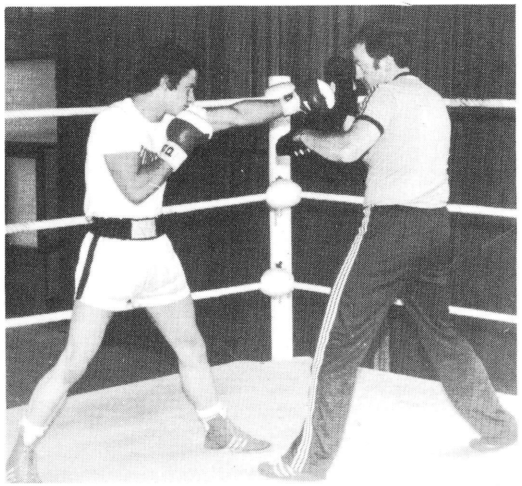
This effective combination is very useful against a crouching opponent with a high guard. The jab measures the distance, the right foot slides forward a few inches and the body whips up a long range uppercut to the chin.

2. Jab to the head – Right uppercut to the body – Left hook to the head (photographs 44, 45, 46)

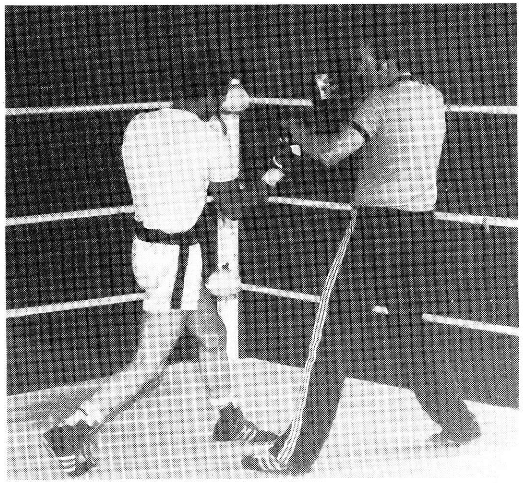
Again the jab 'feels the way', the back foot slides forward to allow the right leg to drive the uppercut into the solar plexus. Having gained this position, the short range left hook follows being thrown inside the opponent's guard.

3. Left hook to the head – Right uppercut to the body – Left hook to the head

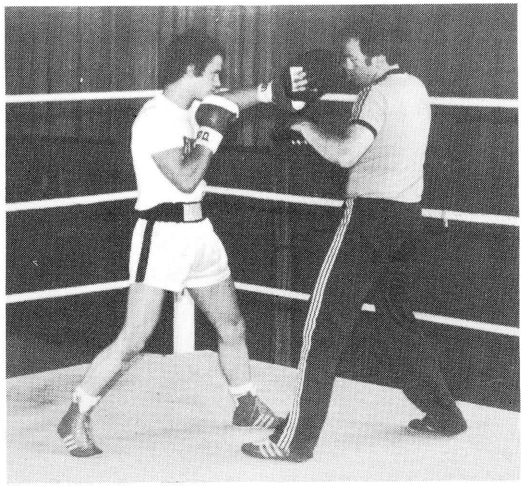
Having slipped outside the lead or parried, the right foot slides to the right to launch this counter combination. The short range left hook is thrown to the chin, body weight being transferred to the right leg for the steep drive of the right uppercut to the body and the combination is closed with a left hook to the head.



Photograph 44.
The jab measures the distance.



Photograph 45.
The right foot drives the uppercut to swift attack.



Photograph 46.
The left hook closes the target up, attacking around the opponent's guard.

4. Straight right to the body – Left hook to the head – Right uppercut to the head

This combination can be thrown as a counter having slipped inside the opponent's jab. The alternative slip and step outside is perhaps to be preferred, taking the counterer away from the opponent's right hand. Having slipped the lead the straight right is thrown to the body, the left hook is driven inside the opponent's guard to the chin and a right uppercut is pivoted to the chin as the right foot slides a few inches forward. The sequence could be continued with another left hook to the chin.

5. Right uppercut to the head – Left cross to the head – Right hook to the head

Again, this counter combination should be thrown from outside the line of the opponent's attack, having slipped the lead. The right foot slides to the right and the right uppercut is thrown under the leading jab (photograph 19). The body is in an excellent position to throw the left cross, with a right hook to the chin following.

6. Left uppercut to the head – Straight right to the head – Left hook to the head

From an inside slip position, the left foot slides forward to the position from which the left uppercut can be launched. The body position is then set for the straight right to the chin and a left hook to the head can be thrown at an angle to suit the specific situation.

THE SOUTHPAW

Southpaw Strategy

Southpaw readers or coaches with southpaw boxers may have begun to wonder where they fit into the ABA Coaching Manual. The answer is 'right through every page'. Points made relating to orthodox techniques are equally valid for southpaws. All that is needed is for the southpaw to mirror the image referred to and apply the same principles. The

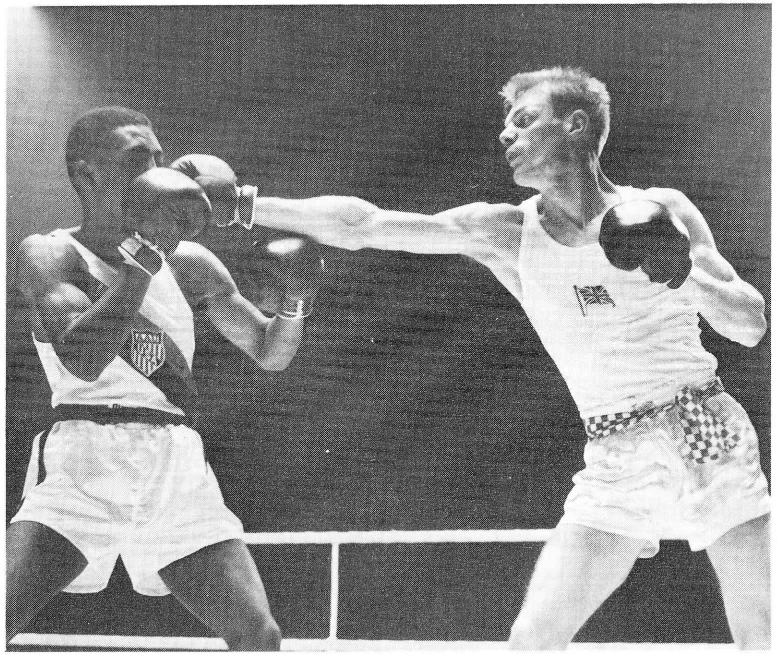
orthodox boxer has been featured in the fundamental and advanced skills because there are far more orthodox than southpaw boxers. It used to be the accepted belief that all southpaws could be changed into orthodox boxers, a view which cannot be justified from any standpoint. Reference has been made in chapter three to this problem, which is crucial in the formative days of a boxer. Present day trends show the reverse. Some coaches encourage boxers to be southpaws regardless of personal preference. This is equally dangerous as the number of unnatural southpaws shows in their over-use of the right hand to the almost total neglect of the left. Such is the motor co-ordination involved that the control, power and confidence in the left hand will never be attained. Every coach must be able to demonstrate basic skills from the orthodox stance but also to appreciate the art of southpaw boxing. With this knowledge, the coach can train southpaw boxers in his club equally as well as orthodox and will appreciate the tactics to be adopted when facing a southpaw.

Although most southpaws are counter-punchers, it is dangerous to group them all under this heading. There are as many different types of southpaws as there are varieties of orthodox styles. Some will maximise their height and reach advantage by relying on the long range jab. Others base their style on counter-punching with particular use being made of the right hook. The southpaw's reliance on left hand hitting power is often demonstrated by the way he whips the left hook or the left uppercut to the body. However, all southpaws have the distinct advantage of being in the minority. Hence, they gain much greater experience against orthodox boxers than orthodox do against southpaws. If they have developed their counter-punching ability, they enjoy a distinct advantage in the distance which their opponent's right hand has to travel to hit their target area. A tall counter-punching southpaw ranks as the worst kind of opponent! They can then counter having thus committed their opponent's lead to fall short. Most orthodox boxers find southpaw opponents awkward. Southpaws should therefore maximise their awkwardness to exasperate their opponent. The arts of feinting and drawing should form a substantial part of their technique programme.

Basic Southpaw Techniques

1. Right jab (photograph 47)

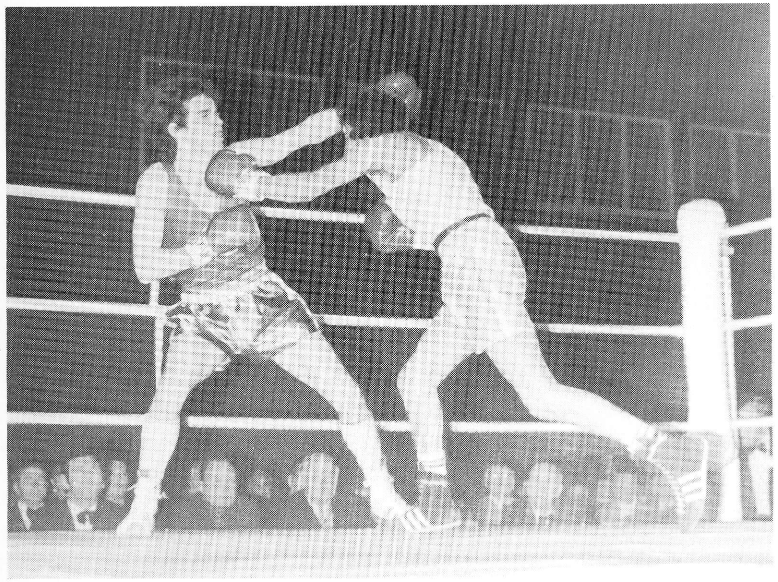
As with all boxers, the southpaw's basic education should be centred on the straight jab. Mechanically it involves precisely the same points as the left jab analysed in chapter three (p. 52). All southpaws need the ability to jab whilst moving in all directions with a special emphasis on anti-clockwise. This takes them away from the orthodox opponent's threatening right hand and should remove any tendency to be stereotyped and therefore predictable in movement.



Photograph 47. A classical southpaw jab.

2. Left cross to the head (photograph 48)

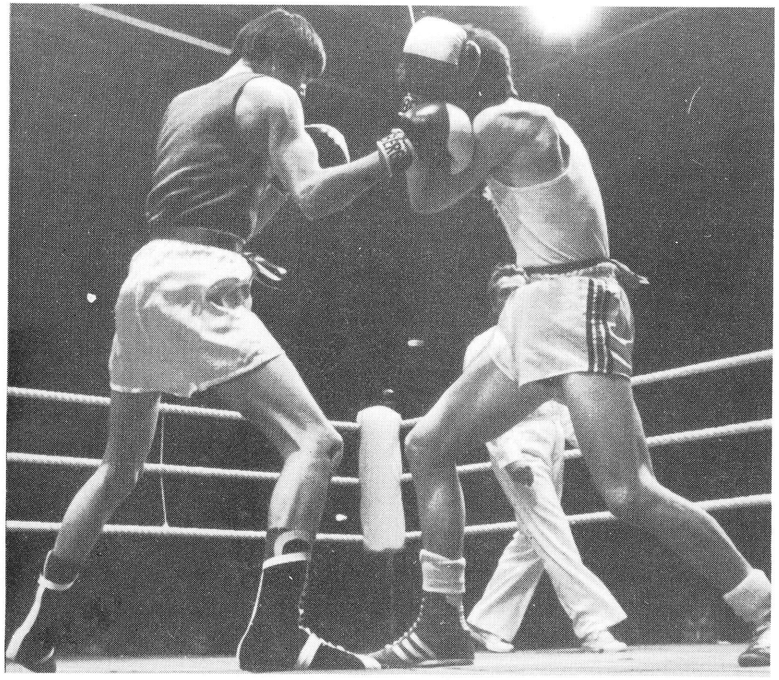
Thrown either as a point scorer or as a power punch, speed and accuracy are vital. Used as a counter-punch its impact is increased with the opponent's body weight committed in an off-balance position. The drive from the rear power driver leg pivots over the front range finder as was analysed with the orthodox boxer's right cross (p. 66).



Photograph 48. Southpaw left cross used as a counter to the left jab.

3. Right hook (photograph 49)

The right hook to the head is particularly effective against the orthodox boxer, as the punch is delivered from outside his line of vision. It deserves special practice as a medium and long range hook with the wrist being rotated accordingly. In the following illustration the southpaw opponent has blocked the right hook and is preparing to throw a right hook counter. Again, the mechanical analysis of the violent rotation around the central axis applies (p. 77), or too for the left hook.



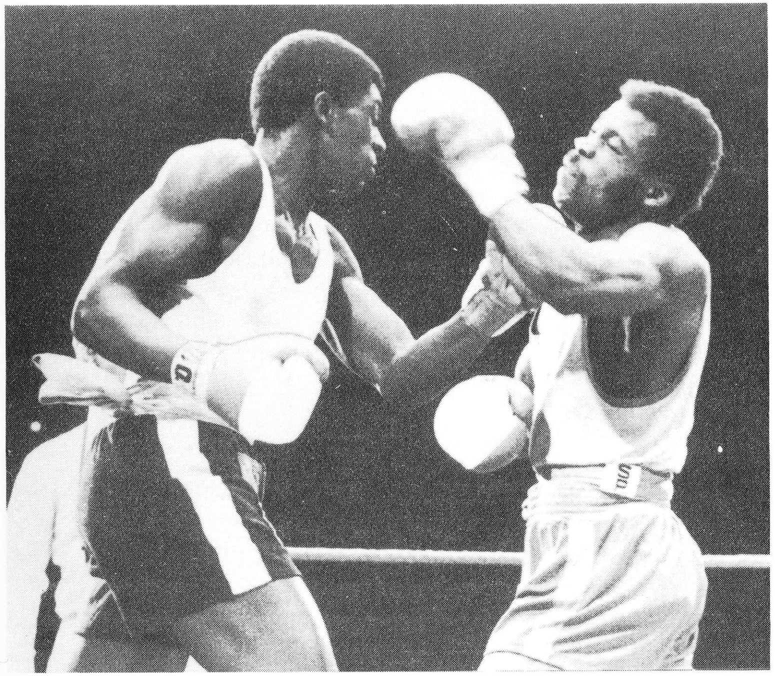
Photograph 49. The southpaw right hook, here successfully blocked.

4. *Left uppercut* (photograph 50)

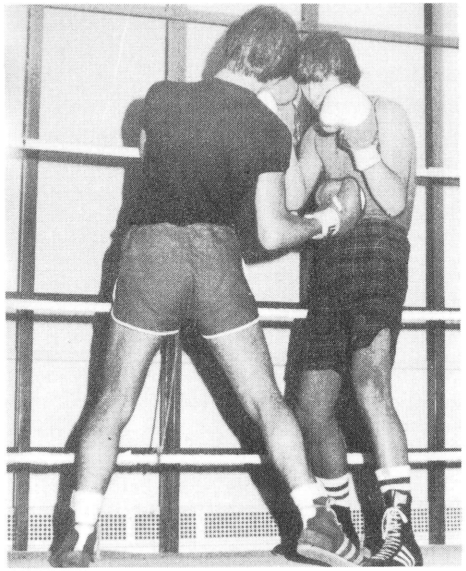
Used as part of an attacker's combination or as a counter-punch, the left uppercut to the head or body is thrown between the opponent's guard with the angle being determined by the distance from the opponent. In this case the left uppercut is thrown as a counter to the orthodox opponent's left jab.

5. *Right uppercut* (photograph 51)

Any attack or counter with the leading hand has less distance to travel before impact and therefore has an in-built advantage. The right foot takes the southpaw into a position to drive the arm vertically to the opponent's body or head. In this illustration of the right uppercut the left cross to the head could well follow.



Photograph 50 *(above)*. Southpaw's medium range left uppercut used as a counter.



Photograph 51. Short range right uppercut to the body. Note the drive off the right foot.

Tactics against Southpaws

The direction of movements of orthodox boxers against southpaws is crucial. It has long been held that the orthodox boxer should move to his left – away from the southpaw's dangerous left glove. But it could be that the southpaw can hit with his right hand harder than his left. Then the orthodox boxer would be moving on to the stronger punch with the added problem of coping with a punch coming from outside his line of vision. Direction of movement should be dependent upon:

(i) the type of southpaw faced,
(ii) the punching repertoire of the orthodox boxer,
(iii) the difference in height and reach of the two boxers.

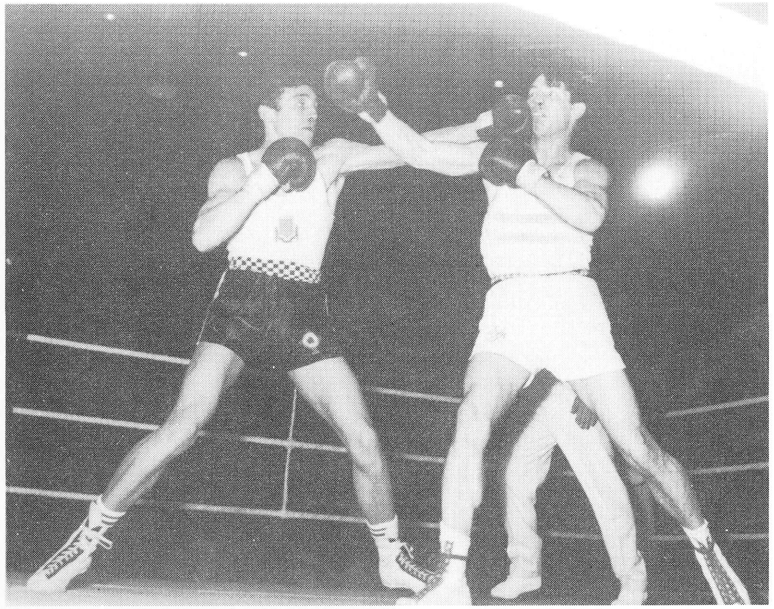
Generally the boxer who dictates the direction of movement is in control of the contest and this is another reason why all boxers must be able to move at ease, retaining balance in all directions.

Traditionally the straight right to the head is the favoured punch against southpaws. This is to some extent true especially if the orthodox boxer makes the southpaw lead and moves on to his right. Yet there is a disadvantage in that the southpaw can keep the right glove in his vision and it does have the greater distance to cover. Generally the left hook of the orthodox boxer is to be preferred as a more effective punch against the southpaw as it can be thrown from outside his line of vision. The coach should not neglect the left jab as a major weapon against all southpaws, used as a lead, counter or to counter-the-counter. Here lies the true control of the contest, the 'who makes who' lead. Feinting and drawing techniques are needed to break up the rhythm and pattern of the southpaw opponent in making him do that which he prefers not to do – lead!

Effective Techniques against Southpaws

1. Outside jab (photograph 52)

Having drawn the southpaw lead the orthodox boxer slides



Photograph 52. Outside jab used to counter the southpaw lead.

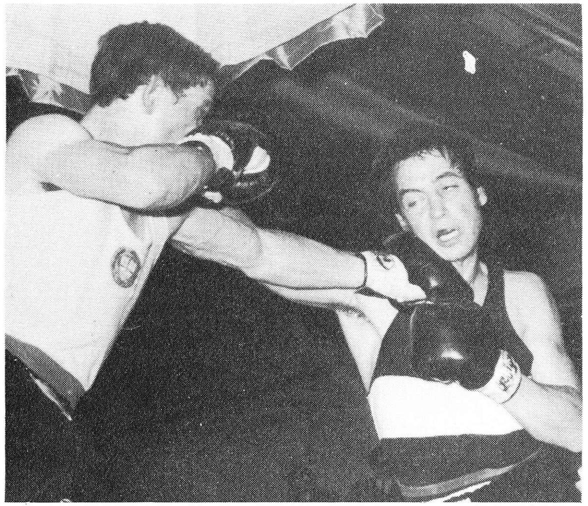
his range finder outside the on-coming opponent's jab and snaps in his jab from outside his opponent's line of vision. A straight right to the head or body could follow.

2. Inside jab – against opponent's straight right (photograph 53)

Here the orthodox boxer has moved quickly to his right to find room to throw his jab counter inside his opponent's right lead. Special attention should be made to the high guarding right glove ready to defend against a possible attack with the left cross.

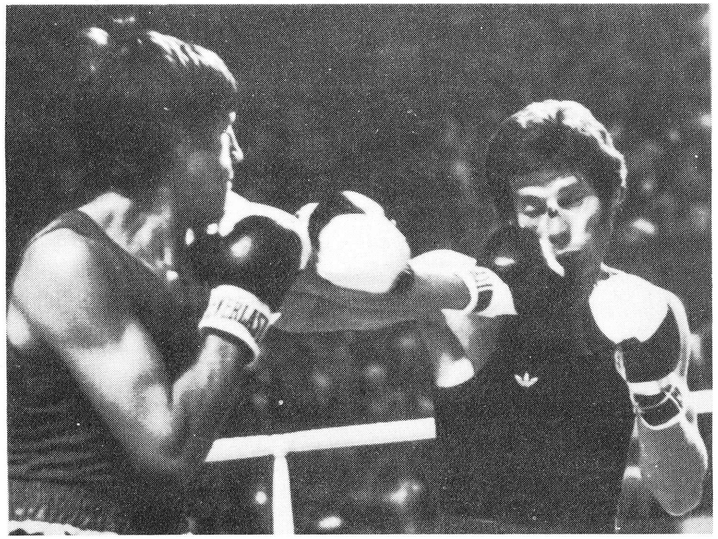
3. Inside jab – against the right hook (photograph 54)

By feinting or drawing the orthodox boxer has triggered off the southpaw right hook counter. His straight left snaps inside the right hook. Particular attention should be taken of the orthodox boxer's tight guard.



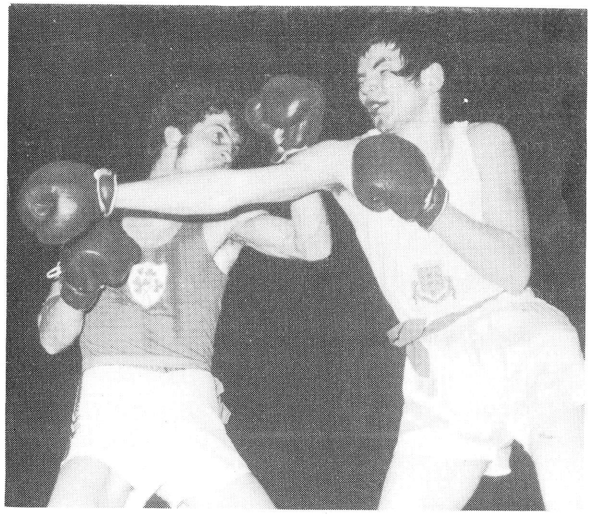
Photograph 53. Left jab counter thrown inside the southpaw lead.

Photograph 54. Stiff left jab counter against the drawn southpaw right hook.



4. *Straight right counter to the head* (photograph 55)

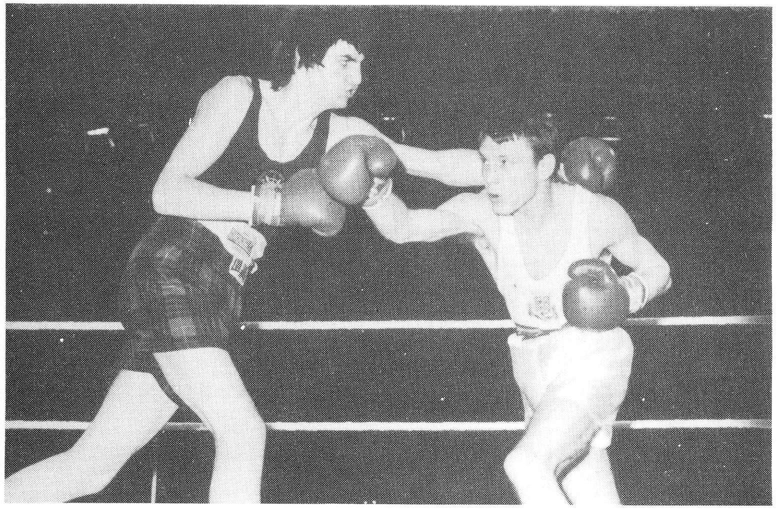
The advantage of countering from outside the southpaw's line of vision can be clearly seen. A deflection with the leading glove commits the southpaw to an off balance position. The straight right counter to the head is then launched.



Photograph 55. Straight right counter to the committed southpaw lead.

5. *Straight right counter to the left cross* (photograph 56)

Having slipped inside the southpaw's left cross, the orthodox boxer has countered with a straight right. A left hook to the head or body might follow. This perhaps shows the need for the coach to allow for flair and individual interpretation in all countering – not to stereotype all boxers with totally programmed responses.



Photograph 56. Countering the southpaw's left cross after slipping inside.

Ringcraft

Never should the coach lose sight of the maxim that the aim in amateur boxing is to hit the opponent without being hit oneself. To acquire an extensive repertoire of punching and of defensive techniques is pointless unless the choice of 'when and how' to use them has also been an integral part of the coaching programme. All skill work should be related to the ring. Ring-craft embraces the areas that a coach should cover in order to prepare his boxers for competition. It involves the essence of what amateur boxing should be about; the out-thinking, out-manoeuvring of one's opponent, the subtleties of techniques which allow a boxer to turn a seemingly defensive position into attack. Not only should the observer see a wide variation of skills being used but he should also see flair, that natural ability which the coach has encouraged in his boxer to improvise from the orthodox into the artistic creation. The heart of all competition lies in the struggle to win and boxing is no exception. Though one must allow for the unexpected, generally the boxer who gradually asserts control of the bout will win. This assumes that his fitness level is sufficient to enable him to maintain the work-rate for the duration of the bout. Control can be demonstrated by dictating the tactics, rhythm and pattern of the contest.

Tactics. The plan of campaign based on the boxer's build, style, fitness, punching and defensive repertoire and temperament. The successful boxer is the one who can change his tactics to suit his opponent.

Rhythm. Each boxer has a basic rhythm, a work-rate which optimises his style and level of fitness. By varying the tempo of attack a boxer can upset his opponent's rhythm and destroy his poise. Once this has happened the opponent's technique becomes ragged and loopholes will appear in defence which can be exploited.

Patterns. All contests follow a movement pattern. This involves the relative positioning and movement of the boxers in the ring. Control of ring space is basic to success. This

control involves dominating the centre of the ring, cutting the opponent off in corners, lateral movement with attacks launched from different angles, constant changes of direction and/or *movement* speed.

Ringcraft is about creating openings, scoring is the taking of advantages of the openings made. Points can be scored by landing punches on the target area in the form of attack, counter or counter-attack. Though there are many possible variations of these divisions, each is a natural progression from the other and can be as simple or complex as natural ability and movement speed of the individual dictate.

Attack	A lead or combination aimed at the target area.
Counter	A punch or combination thrown after a defensive action has created an opening.
Counter-attack	An attack which is launched as the opponent leads. There is no defensive movement, rather the opponent is beaten to the punch (figure 90).

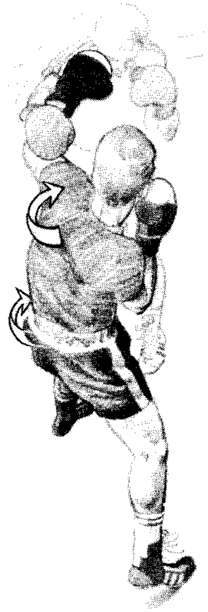


Figure 90. Counter-attack. The left jab has been thrown inside the opponent's leading straight right with probably a 'straight right' to follow.

Feinting and Drawing

It should be emphasised throughout the early stages in a boxer's development that amateur boxing is a sport of 'physical chess'. Skill practices in feinting and drawing will help greatly in producing this desired attitude of mind. A boxer needs to acquire the air of unpredictability – keeping the opponent guessing, the skill of reading his opponent – and hence anticipating his likely response. Having developed this faculty he can trigger off his opponent's reactions accordingly. Preferred defences to attack should be noted. Mannerisms of style looked for and patterns of movement observed. The coach should foster this perceptual process in sparring and ensure a variety of sparring partners. Once club mates can read each other's style, much of the outwitting, out-thinking cognitive process is clouded under stereotyped habits.

Feinting is making the opponent think that a specific or general attack is being launched as a first phase attack. It involves feinting a realistic movement of the attack which promotes an anticipated response in the opponent. Feints can be made with:

1. Feet/legs – feinting changes of movement/direction being especially effective.
2. Gloves/arms.
3. Trunk/shoulders.

The choice of feints will depend upon a boxer's physique, co-ordination, punching repertoire, speed of reaction – and the opening sought. It follows that much practice is needed in making the feints realistic. This is perhaps best achieved by practising in front of a mirror. Having committed the opponent to the desired response the ensuing second phase of attack must be at lightning speed with pinpoint accuracy. The sequence thus becomes:

Feint – first phase attack.
Counter response by opponent.
Counter the counter – second phase attack.

Not all attempts at feinting will go so smoothly! The unpredicted response must always be allowed for and feints never attempted which leave the attacker so exposed that a switch by the opponent catches him totally committed to the feint and therefore vulnerable. Should this happen a boxer should always have a second line of defence. The choice of feints must depend upon the type of opponent but all boxers should be able to call on a number of feints. Also, although the following gives examples of specific feints a combination of feints often combines to make the realism much more effective. The eyes, trunk, arms and feet can all be used together.

Feint Practices

1. Direction of attack

Boxers should practise feinting switch of direction, moving to the left – switching to the right and then attacking. This can be developed into moving to the left, appearing to switch to the right, and attacking from the left. Use of the sidestep will be especially effective.

2. Moving forward

The front foot begins to slide forward in its range finding role. The opponent expects an attack and launches a counter or counter-attack. Immediately the forward momentum is transferred into an explosive drive backwards off the front foot and a counter is unleashed as the opponent commits himself off-balance.

3. Moving backwards

A controlled backward step with the rear leg is turned into an explosive push forward as his opponent slides forward to close the gap which he believes is going to open between them. The counter thrown following this feint is best made with the rear hand.

4. Angle of attack

The jab is pushed at the opponent which turns into a hook from the midway distance. With this change in the angle of attack there is an explosive change in speed. The shoulder whips through and a fast step forward takes the boxer a few inches closer to land his medium or long range hook to the head. With the more advanced performer a similar ploy is possible with the straight right.

5. *Change of punch*

Either arm can be used in the feinted first phase of attack. The trunk and/or arm moves as if to lead, as the opponent reacts to the feint the other arm pivots through at speed as a straight punch or hook. For example:

Feint with right hand to the head, switch to left hook to the head.
Feint with jab to the head, switch to straight right to the head.

6. *Switch of attack*

This can involve switching attack from body to head or from head to body. Both should be practised but preference perhaps be given to the body to head switch of attack. This affords the powerful drive of the legs to be transferred upwards with the punch to the head. Either hand can be used with the feint being accompanied by a dip of the trunk forward and the bend of the back leg as if to attack the body. The second phase of attack can involve the same arm or its partner. Either hooks or straight punches may be used. For example:

Feint jab to the body, jab to the head.
Feint jab to the body, left hook to the head.
Feint straight right to the body, left cross to the head.
Feint jab to the head, straight right to the body.
Feint jab to the head, jab to the body.
Feint straight right to the head, left hook to the head or body.

Drawing

Drawing is a continuation of the process of out-thinking the opponent. It involves leaving part of the target area exposed

in order to draw an anticipated attack of the opponent. It can be especially beneficial in drawing a counter-puncher or the high guarded opponent to lead, for as soon as an opponent attacks he becomes open to counters or counter-attack. Like feinting it requires a great deal of practice and is the hallmark of a champion. Consideration of the boxer's speed of reaction is essential as drawing presents an opening for the opponent's attack, and the boxer then must be fast enough to:

(i) not to be caught in his own trap,
(ii) take advantage of the opponent's predicted attack, having already decided his own counter.

The distance from the opponent needs careful attention. To present an opening too far away will prove ineffective; to try and draw an opponent who is in striking distance is courting danger. Drawing requires a great deal of confidence which will enable the boxer to counter at lightning speed with reflex, pre-selected counters. He will have judged the distance which the punch has to travel with speed and accuracy. Sparring practices should make the boxer aware of the optimum position in the ring in which to draw his opponent's attack. He should always leave himself with a second line of defence should the opponent do the unexpected. The role of the feet in this respect is important. For example:

Drop the left hand to draw the opponent's straight right to the head, step to the right and counter with a straight right to the head or right hook to the body.
Hold arms apart exposing the solar plexus, launch counter-attack to the head with both hands as the opponent attacks.
Drop the right hand to the chest, anticipating the opponent's attack with a left hook, lay back and snap straight right counter to the head.

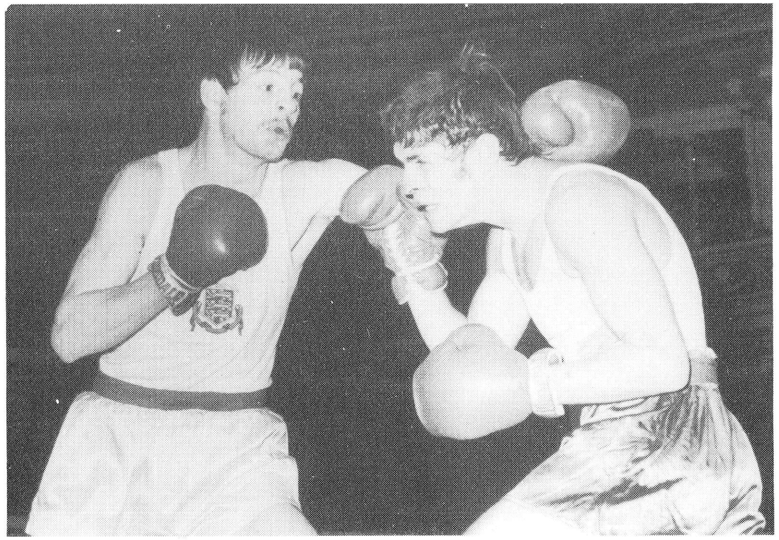
In-fighting

The boxer whose tactics are based on in-fighting faces three problems:

1. How he gains the inside position.
2. The most effective punches to throw.
3. How to retreat from the inside position with safety.

1. Gaining the inside position (photograph 57)

Slipping (p. 56) is perhaps the most effective means of evading the opponent's attack to the head and moving into close quarters. Should this attack be in the form of a jab to the head, then the distance to be covered by the counterer's feet will require fast and decisive movement. If the attack being evaded involves an opponent's commitment of body weight, then foot movement is less essential as the target area of the opponent is brought to the counterer. Rolling and ducking are suitable defensive techniques which can also be used. With both, the position of the head requires careful attention. The eyes should be kept on the opponent at all times.



Photograph 57. Slipping inside the lead to launch a short range attack.

The inside position can also be gained by following the jab. A sequence of jabs is thrown with the attacker moving in behind ever shortening leads. This approach is especially effective when commenced near the ropes as the opponent's backward movement is restricted. The previously mentioned speed jab (p. 126) can also be used with rapid foot movement being essential.

2. Punching inside

As with all punching, the position of the feet is vital. Though the body must come much squarer to the opponent 'depth' in base must still be present. Hence the back leg will move forward – but not to a square-on position. If the latter position is attained the boxer's body weight is committed too far forward from his base with the result that he will lean on his opponent, greatly increasing the danger of a clash of heads. Also the ability to lay-back during the burst of in-fighting is lost, as is the ability to move backwards at speed.

Punches should be short, elbows kept close to the sides with power coming from maximum rotation of the trunk at speed. Hooks and uppercuts may be switched from body to head, with the angle of punching being varied according to the loopholes in the opponent's guard. Straight punches must be short with again the emphasis on clusters rather than single punches. Many bursts of in-fighting prove ineffective owing to the boxers getting too close. Practice is needed in making room at close quarters. The optimum in-fighting distance enables bursts of short range punches to be sent at maximum speed with accuracy at a specific part of the target area.

3. Moving away

The most vulnerable time for the shorter opponent is often when he breaks off the exchange. His retreat from the inside position should be fast with a high guard and chin being tucked in behind the shoulder. Again a salvo of jabs which lengthen as the distance increases keeps the opponent off balance. A sideways moving target is always more difficult to hit than an upright, especially if the direction of retreat is at an angle not on a straight line.

There is another side to this problem. The boxer who is forced into an in-fighting position must develop the ability to negate his opponent's inside work without infringement of the rules. It follows that he must be concerned with breaking away from the exchange as quickly as possible. Technique and conditioned sparring with both points as separate themes will pave the way. To prevent his opponent from scoring, the boxer's aim is to gain the inside position and force his opponent's arms outwards. Use of the double cover (p. 93) will prove invaluable in preventing the opponent from scoring but sometimes the body type of the boxer employing this cover makes it ineffective. Perhaps then he needs to practise turning the opponent – an extremely effective move if the opponent is standing square on. Great care is needed to ensure that the rules are not broken. No deliberate push is permitted, the movement involved is a deflection of the elbow.

Turning the opponent

1. A short jab is thrown at the opponent's right shoulder.
2. The opponent's right elbow is brushed across his body with the palm of the right glove to assist the rotation.
3. The feet glide to the right (p. 110), taking the defender out of the line of attack and ready to counter with a left hook or straight right.

In-Fighting Coaching Hints

1. Extreme care is needed with the position of the head, eyes should be kept on the opponent.
2. The quality of punching should be stressed, fair punches on the target area.
3. Attack should be switched from body to head, with the angle varied.
4. Use of the glide in turning the opponent must be synchronised with the deflection of his body weight.
5. Depth of base is vital, the rear leg must never be allowed to move in line with the leading leg.
6. The lay-back can be used to give room and therefore leverage whilst enabling the pattern of attack to be changed.

7. The boxer should practise punching a heavy bag with elbows locked at the sides, maximum leverage being gained from the rotation of the trunk.
8. Sparring practices themed on 'gaining the inside position', especially when trapped in a corner, can be alternated with 'stopping the opponent from scoring'.
9. The coach should encourage his boxers to practise various combinations which could be used in contests against different types of opponents.

5

UNDERSTANDING FITNESS

Fitness is the essential platform on which the skills of boxing are based. The level of fitness needed is determined by the age, style and level of competition at which the boxer is involved. It should enable the boxer to move and punch at speed for the duration of the contest, without a breakdown of skill. Certainly a boxer has to learn how to pace a contest but pacing should not be a cover for an inability to maintain a high work-rate. Speed of recovery is the crucial ingredient with the fit boxer. He has conditioned his body to the amateur game, the fast explosive effort and the short recovery. Fitness should never be regarded as a substitute for skill. Whilst tolerance to punishment is a factor which should be covered in the coach's conditioning programme, no boxer however unco-ordinated should see this as a 'carte blanche' for the absorption of punches. His aim must always be to hit his opponent without being hit himself.

Much of the fitness programme in many of the ABA clubs leaves a great deal to be desired. A blind acceptance of traditional training methods has been passed from generation to generation of boxers leading to a stunted, narrow approach, based on a mystique which withers when evaluated in the light of modern thought. The coach must be logical in his thinking, comprehensive in his planning, original in his presentation and always ready to absorb new ideas which his eager mind seeks. To evaluate his own training methods and the worth of new approaches a basic knowledge of the physiology of exercise is essential. This knowledge will help him to generate confidence which will be transferred to the boxers. Every boxer is different. He should cater for this

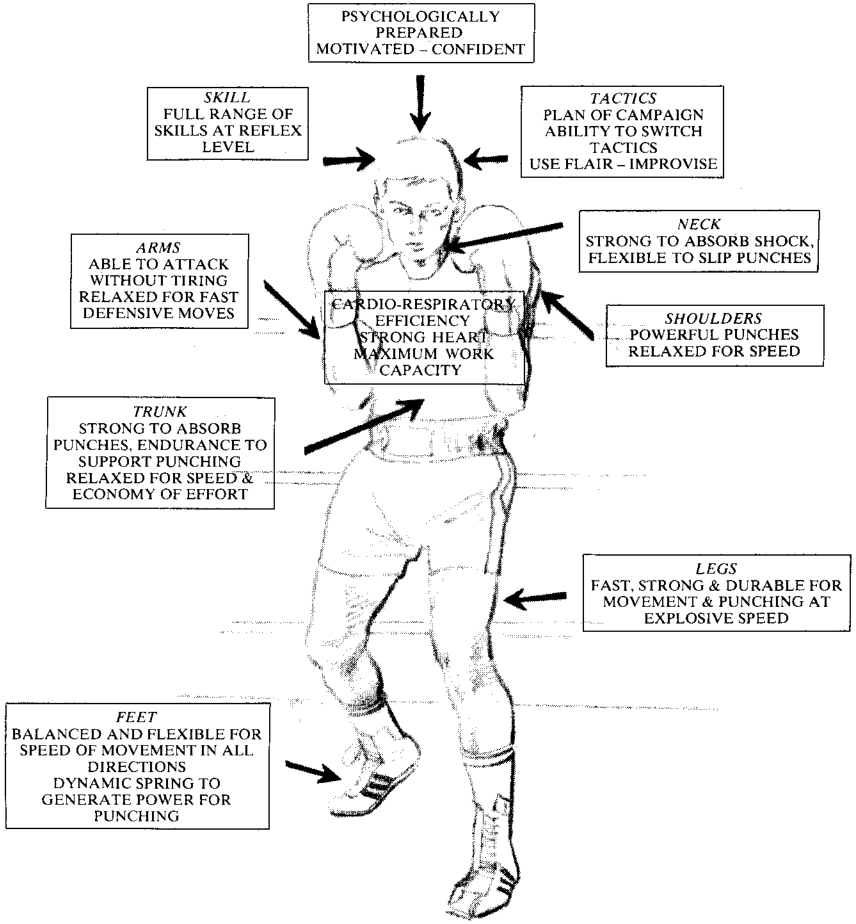
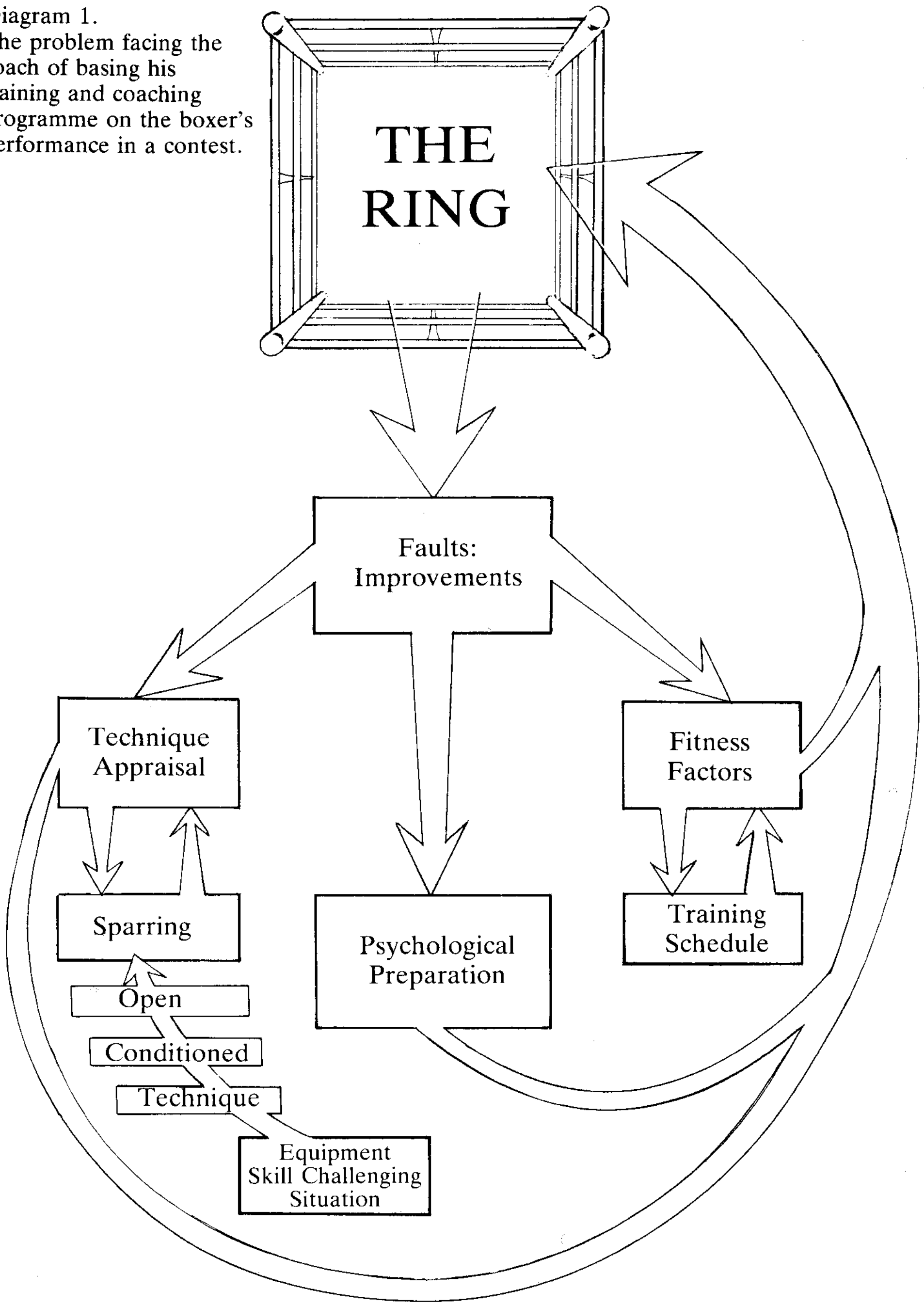

PSYCHOLOGICALLY PREPARED MOTIVATED – CONFIDENT
SKILL
FULL RANGE OF SKILLS AT REFLEX LEVEL
TACTICS
PLAN OF CAMPAIGN ABILITY TO SWITCH TACTICS USE FLAIR – IMPROVISE
NECK
STRONG TO ABSORB SHOCK, FLEXIBLE TO SLIP PUNCHES
ARMS
ABLE TO ATTACK WITHOUT TIRING RELAXED FOR FAST DEFENSIVE MOVES
CARDIO-RESPIRATORY EFFICIENCY STRONG HEART MAXIMUM WORK CAPACITY
SHOULDERS
POWERFUL PUNCHES RELAXED FOR SPEED
TRUNK
STRONG TO ABSORB PUNCHES, ENDURANCE TO SUPPORT PUNCHING RELAXED FOR SPEED & ECONOMY OF EFFORT
LEGS
FAST, STRONG & DURABLE FOR MOVEMENT & PUNCHING AT EXPLOSIVE SPEED
FEET
BALANCED AND FLEXIBLE FOR SPEED OF MOVEMENT IN ALL DIRECTIONS DYNAMIC SPRING TO GENERATE POWER FOR PUNCHING

Figure 91. Fitness factors. Understanding fitness.

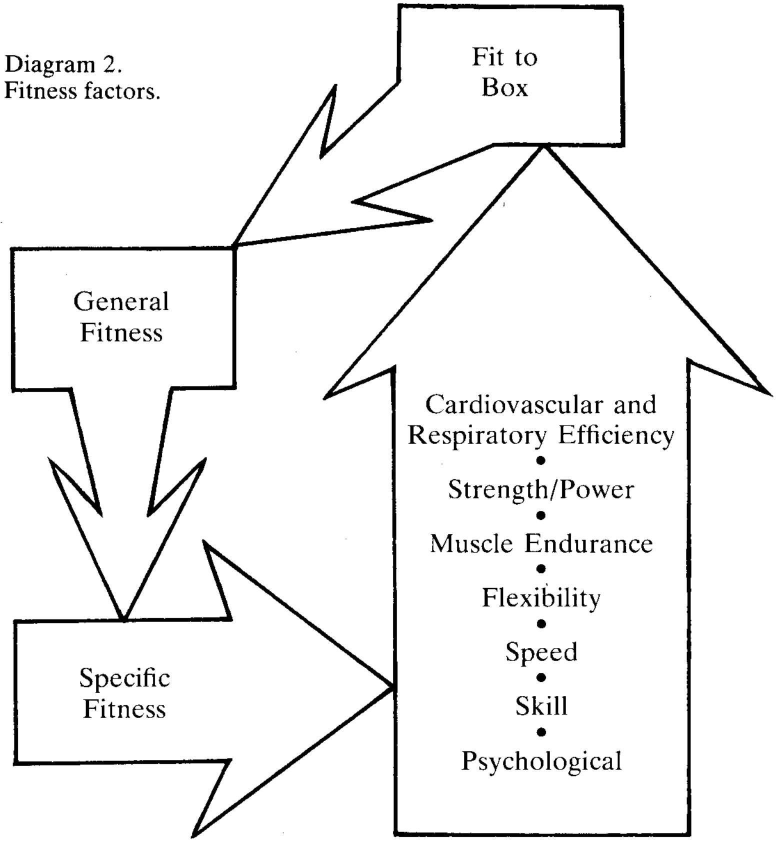
Diagram 1.
The problem facing the coach of basing his training and coaching programme on the boxer's performance in a contest.



individuality in the training programme as each boxer approaches his short and long term objectives.

There are as many different types of fitness as there are physical tasks to perform. Gone are the days when the term 'fitness' implied a vague feeling of 'looking and feeling good'. Amateur boxing needs fitness which is specific to its requirements. Only by a comprehensive analysis of the factors involved will the coach be able to shape his conditioning programme to cover these specific needs. Though each fitness factor is dealt with separately in this chapter this is an arbitrary division which is not borne out in practice. For all the factors are inter-related and inter-dependent (diagram 2).

Diagram 2.
Fitness factors.



Cardiovascular Efficiency

Every living cell of the body is dependent upon an adequate circulation system if it is to survive. Blood carries fuel and oxygen to the muscles, removes the waste products – chiefly carbon dioxide – and dissipates the heat produced by muscular activity. The fluid part of the blood is called plasma and carries sugar and other nutritional compounds to the working cells. Red blood cells containing haemoglobin are responsible for the transport of oxygen. Arterial blood is bright red as it carries the oxygen to the tissues and it becomes dark red after the exchange of oxygen for carbon dioxide. White corpuscles are defensive agents against bacterial infection. The smallest group of cells is the platelets which start the process of blood clotting.

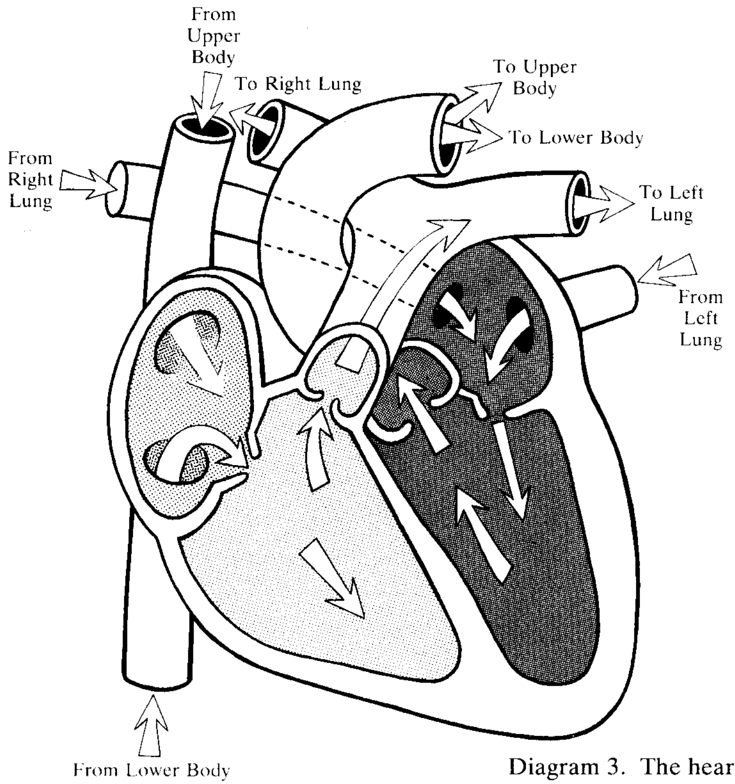


Diagram 3. The heart.

The heart is the most important organ in the body being responsible for the circulation of the blood. It works as a pump divided into four chambers with unidirectional flow valves and is regulated by the nervous system. Fresh, oxygenated blood is pumped from the right lower chamber of the heart (left ventricle) into the main artery (the aorta) and then is carried to all parts of the body by the smaller arterioles and finally the minute capillaries. Veins then carry the deoxygenated blood away from the tissues to the top left chamber of the heart (right atrium) from where it passes into the lower chamber (right ventricle). The lungs then receive the blood from the right ventricle through the pulmonary artery, where the blood is re-oxygenated and returned to the top right chamber of the heart before re-entering the left ventricle. The heart also has its own internal blood circulation known as the coronary circulation, which feeds the cardiac muscle.

During exercise there is an increase in the demand for oxygen. Therefore the heart needs to increase its output to improve the flow of blood to the exercising muscles. If there is no increase in circulation muscular contraction cannot be sustained for any significant length of time. This increase in circulation is achieved by an increase in heart rate and an increase in the amount of blood pumped by the heart at each beat – this is known as the stroke volume. Owing to the fact that the arteries are elastic and the heart pumps into them intermittently, an expansion wave is set up which is called the pulse; the average pulse rate is around 72 beats per minute. Above a rate of about 190 beats cardiac filling time is so reduced as to render impossible the complete refilling of the chamber during diastole, therefore the output per beat drops. This in turn leads to a fall in the minute volume of the heart and usually occurs as the 170 to 190 pulse is reached. This is therefore the optimum cardiac output.

With training the heart becomes more efficient and can pump more blood whilst beating less frequently. A trained boxer will usually have a low resting pulse rate, perhaps in the range of 50 to 60 beats per minute. His speed of recovery following heavy exercise can also be measured in terms of his pulse rate, the fitter the boxer, the more quickly his pulse rate will return to normal. There is considerable evidence that several years of graded severe training can produce an increase in the size of the heart's chambers and the thickness of the cavity walls. Hence the trained heart becomes more efficient and able to circulate more blood whilst beating less frequently. The fit boxer's heart rate will not rise as high for the same degree of intensity of exercise as the average man's and will return to normal much more quickly. During training recovery intervals must be sufficiently long to allow recovery from local muscle fatigue so that the quality of work can be maintained but not so long that the heart rate will fall too low. 140 beats per minute is generally accepted as the approximate optimum level to which the pulse should fall in recovery.

The Energy Processes

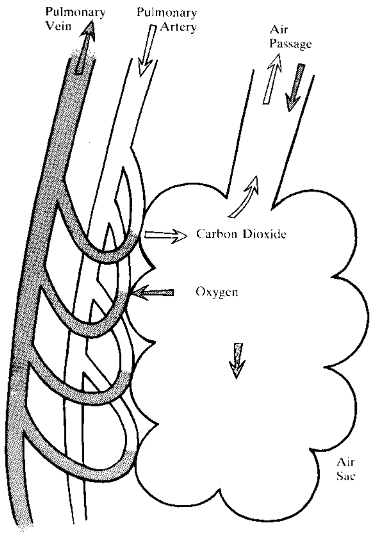
The biochemistry of muscular contraction in the release of energy in the muscles is a complex process. Energy for steady state work is derived from the action of oxygen on the glucose stored in the muscles. With such a work load oxygen uptake balances the oxygen requirements of the tissues. Consequently there is no accumulation of lactic acid which builds up in the muscles when the body's needs exceeds the amount of oxygen available. Though there are great individual differences amongst boxers, 150 to 160 beats per minute indicates that the boxer is working aerobically. An essential feature of a training programme is to develop this aerobic power. When the oxygen uptake limit is reached the increased energy needed is produced by the anaerobic process. Oxygen uptake (VO_2) is the volume of oxygen extracted from the inspired air. Top boxers may well possess a high maximum VO_2, perhaps exceeding six litres per minute. Energy produced by the anaerobic process is without the presence of oxygen and with lactic acid being a by-product. On the cessation of exercise the oxygen has to be repaid to re-convert the accumulated lactic acid in the muscles. The amount of oxygen needed to remove the lactic acid is known as the oxygen debt.

Again, this represents another area where the coach will find individual differences in the capacity of boxers to tolerate oxygen debt. A figure in excess of 20 litres is not uncommon. 160 beats per minute is usually taken as an indication that the boxer is beginning anaerobic work. The anaerobic energy output is relatively modest compared with the aerobic energy output. Glucose can for example provide almost 20 times more energy per gram molecule aerobically than anaerobically. Therefore it is the availability of oxygen to the working muscles which determines endurance in long physical work. Both aerobic and anaerobic work should feature in any balanced training programme.

Respiratory Efficiency

It is by means of the respiratory system that the circulatory system both receives its supply of oxygen and removes its waste carbon dioxide. The lungs are the principal organs of respiration. They fill the chest cavity lying one on each side separated in the middle by the heart. The lungs are cone-shaped with their base resting on the diaphragm – a flat muscle separating the chest (thorax) from the abdomen. Each of the lungs is divided into lobes, the right having three, the left two. A small bronchial tube enters each lobule (section of the lung) dividing and subdividing, its walls become thinner and thinner and finally ends in small dilated sacs, the alveoli. The alveoli are surrounded by minute blood vessels (capillaries) which take up the oxygen through the thin walls in exchange for carbon dioxide by a process called diffusion.

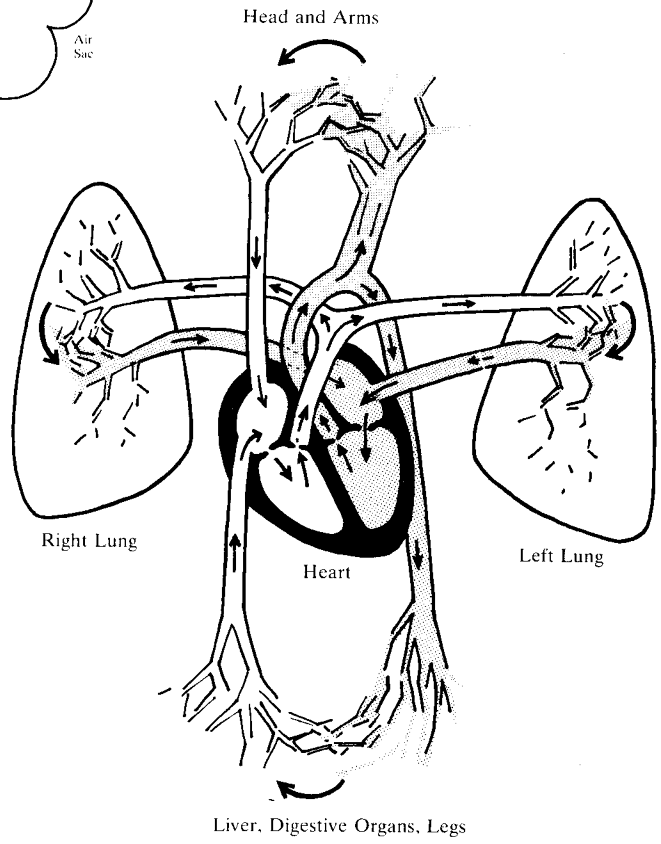
The pulmonary circulation is the means whereby oxygen is transported from the lungs to the heart and carbon dioxide from the heart to lungs. The pulmonary artery carries the de-oxygenated blood from the right ventricle of the heart. Its branches divide into arterioles and further break-up to form capillaries, where the exchange of gases takes place at the alveoli. Pulmonary veins now carry the newly oxygenated blood to the left auricle of the heart for distribution around the body. The latter circulatory system is known as the systemic circulation (diagram 5).



Exchange of Gases at the Lungs

Diagram 4. Exchange of gases at the lungs.

Diagram 5. Circulatory system.



Two movements occur during respiration inspiration and expiration. In quiet breathing the diaphragm does the work. Inspiration is brought about by muscular action. Contraction of the diaphragm enlarges the chest cavity downwards. The intercostal muscles enlarge the chest cavity from side to side. With the elastic tissues of the lungs expanding to fill the increased space, air is drawn into the air passage to fill the lungs. Expiration is the forcing out of the air by the muscles relaxing and the elastic recoil of the lungs to their original size. Both the rate and depth of respiration are under nervous control. The maximum amount of air that can be moved with each respiration is the vital capacity. Heavier exercise meets the extra demands of the body for oxygen by increasing the rate of breathing and the depth of respiration. This is brought about by increase in the CO_2 level of the blood stimulating the respiratory centre in the brain to activate the diaphragm and other respiratory muscles to contract more quickly and deeply. As co-ordination improves oxygen consumption decreases and respiratory muscles increase in efficiency. The trained boxer has a greater depth of breathing and his respiratory rate at rest may fall from 20 to eight per minute. The effect of increasing his vital capacity means an increase in the volume of air inspired but also increases the area of lung surface available for gaseous interchange. A greater maximum effort can be produced because the contraction of the oxygen debt begins only after a much higher level of physical effort, lactic acid starts accumulating at a heavier load and builds up less quickly.

Strength – Power – Muscle Endurance

Strength can be defined as the ability of a muscle to exert force against resistance. When the factor of speed is combined with strength the product is power. Simply expressed,

$$\text{Power} = \frac{\text{Force} \times \text{Distance}}{\text{Time}}$$

Though all muscles possess the characteristics of elasticity and contractility, only the voluntary (striated) type come under the direct control of the will. The involuntary (unstriated) and cardiac types do not. Movement of a limb is brought about by voluntary muscles attached by tendons to bones. Each muscle is comprised of 'hair-like' fibres which are bound together by a connective tissue in bundles. A number of bundles constitutes a motor unit. The motor unit obeys the 'all-or-none' law of contraction, that is when stimulated the fibres contract maximumly. The number of fibres in any muscle will vary according to the size and function of the muscle. Even at rest there is always a number of motor units contracting in the muscle, which constitutes muscle tone.

Both dynamic and static strength are necessary in boxing. Progressive resistance exercises with weights is the usual form of dynamic training. When the load being moved is too great, no movement takes place and the resultant held contraction is classified as *isometric work*. An increase in the size of muscles involved in the strength training programme is not automatic. Frequently weight training produces better muscular definition which is mistaken for an increase in bulk. In fact a muscle can increase its strength level threefold without the proportionate increase in size. Control of the muscles by the nervous system should also improve with training. Motor impulses can be discharged into the muscle at a greatly increased frequency and therefore stimulate a greater proportion of the fibres into a stronger contraction. With all strength training the intensity of work load should be increased approximately every 14 days.

A boxer needs to possess the ability to punch and move at speed for the duration of his contest. He is not only concerned with landing the one good punch or combination with explosive power but also with the quality of all punches thrown. The ability of a muscle to repeat sub-maximal contractions for the duration of the contest involves the muscle endurance factor of a boxer's fitness. This is largely brought about by an improvement in the blood supply to the muscles. The number of capillaries can increase by up to 45 per cent. There is also a greater quantity of protein stored in the muscle for immediate usage in the form of myoglobin. Hence endurance is associated with a more plentiful supply of protein and oxygen which is provided by the capillaries. The trained boxer not only appears to be able to exchange the air in his lungs with the atmosphere more quickly and efficiently, he can also bring about a more rapid and efficient diffusion of gases between the alveoli and the red blood cells which carry the oxygen in the blood. An aim of fitness is to improve the aerobic capacity of a boxer (the work done before oxygen debt accumulates) which therefore delays the onset of local muscular fatigue. This is largely dependent upon the oxygen carrying capacity of a boxer. Specific aerobic training can improve a boxer's oxygen uptake (VO_2) by more than 20 per cent.

Both strength and local muscular endurance can be approached as part of the general all-round fitness programme or as an integral aspect of the skills programme. Before a boxer can embark upon a physically demanding skills programme he has to have a basic general fitness. The paradox of having to be fit in order to get fit holds. Having achieved this basic level, he can then undertake his more specific programme. The principles of training will hold for both. Strength is concerned with one explosive effort, which involves working a muscle for a short time with maximum or near maximum load. Endurance involves repeating submaximal loads, hence training will feature fast repetitions with a light load. A boxer frequently does not have sufficient basic animal strength in muscles to produce an effective technique. Then his body will subconsciously modify the mechanics involved accordingly, and groove a faulty technique. There is a need to develop gross body strength and the specific strength involved in the skills of boxing. For success the boxer requires strength in the specific pattern of movement which the skills involve. It is also important to remember that although it takes many months to build up muscular strength and endurance, muscular wastage (atrophy) following cessation of exercise is much more rapid. During the competitive season strength, power and muscular endurance will fall even if a boxer is competing regularly unless specific work is included in the training programme.

Speed

Skeletal muscle comprises of red and white fibres. Red, or slow twitch fibres carry out the slower more controlled movements, white or fast twitch fibres are the agents of fast explosive movements. A muscle biopsy would show that whilst both types of fibres are present in every voluntary muscle, the proportion of slow to fast twitch fibres varies giving an individual potential in the development of speed. This inborn capacity is further confirmed with the consideration that a person's reaction time is also genetic. The total time taken for a movement in reply to a stimulus is known as the *response time.* It includes reaction time and movement time. Though specific training can improve a boxer's response time, pure reaction time will remain unaltered.

Speed has always been recognised by coaches as an essential attribute in boxing. Its relationship with strength in producing power has already been discussed. In fact, some leading coaches believe that strength is auxiliary to speed. Whether this is so is open to debate. What is beyond question is that although there are individual variations for the potential in speed improvement in boxers given specific training the time taken to perform a skilled move will decrease. Coupled closely with an improvement in speed is the need for maintenance of *accuracy.* Never should accuracy be neglected for pure speed. Both are essential qualities for boxers' punches and skilled moves. *Judgement of distance* is also a vital ingredient. Research has shown that speed of reaction to a moving object is quite slow. The main part of the time is spent on the process of fixing on the moving object. Specific training is required to speed up a boxer's reaction to adjust to striking a moving target. The boxer must concentrate on instantaneous reactions following his perception of the cue. This involves the shortening of the latent period in the total response time. Expressed diagrammatically the latent period involves the following (diagram 6):

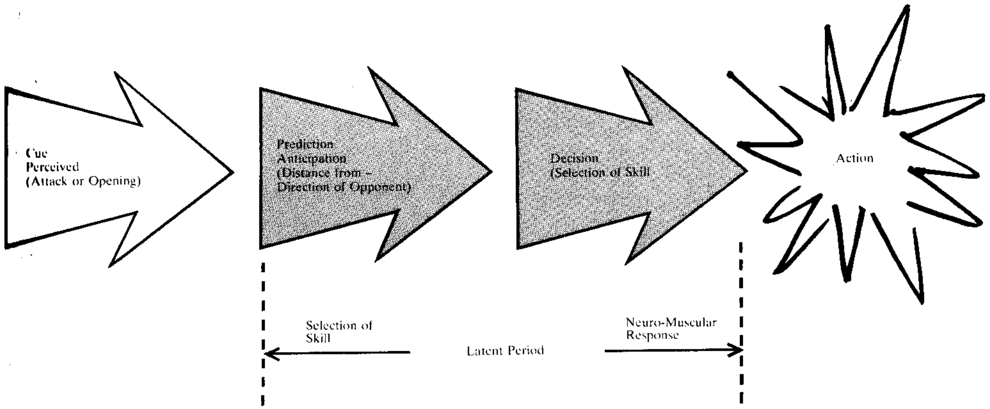


Diagram 6. Improving speed.

The development of speed is a complex process involving the conditioning of the central nervous system, neuro-muscular apparatus, strength, elasticity and speed in contracting the muscles involved in the skilled movement. The coach will need to motivate his boxers to a full level of concentration whilst doing the exercises and drills at maximum speed. Rhythm, tempo and the kinaesthetic awareness of moving fast must be acquired. The use of music as an ergogenic aid may prove helpful. The boxer should experience the full range of speed and power of punch by moving the whole body and specific limb at varying degrees of speed. He can then take advantage of more openings which present themselves in the contest situation. Instead of waiting for the 'ideal opening' for the perfect punch, a boxer will be more able to adjust the speed of the move according to the position and movement direction of his opponent. Whilst still landing a scoring punch the power aspect can be sacrificed for pure speed.

Training programmes should include speed promoting exercises and drills with perhaps artificial aids assisting the kinaesthetic sensation of moving faster. Running downhill is perhaps the simplest example, where the legs are forced to adopt a greatly increased speed of movement. The use of traditional aspects of training such as shadow boxing (figure 92), use of a maize ball, coaching pads, should involve specific speed work. Mental training has a major role to play in the promotion of speed. Speed of punching can be enhanced by

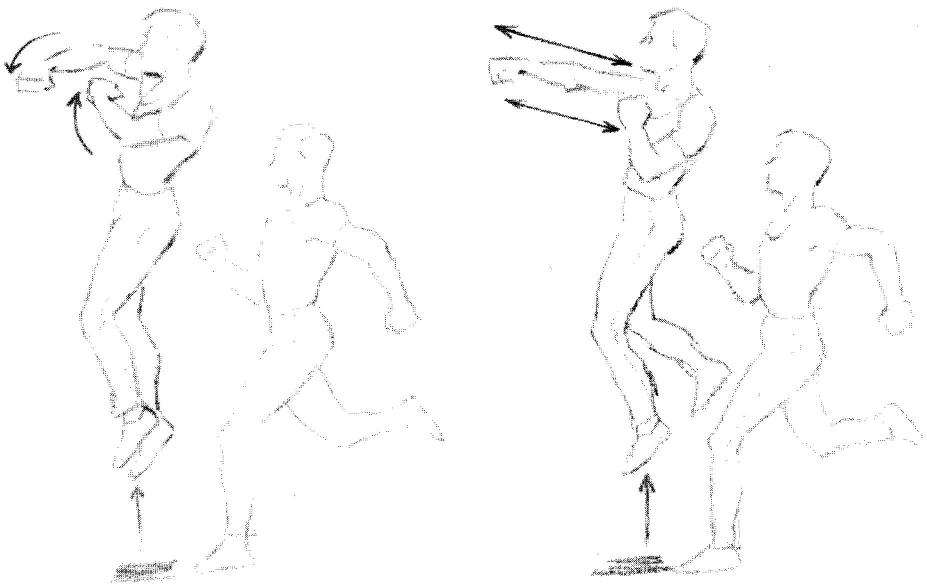


Figure 92. Speed training – 2/3/4 punch combinations can be thrown before landing.

working on specific techniques or on the speed factors common to all punches:

(i) Drive of the feet,
(ii) Pivot of the trunk,
(iii) Extension of the arms.

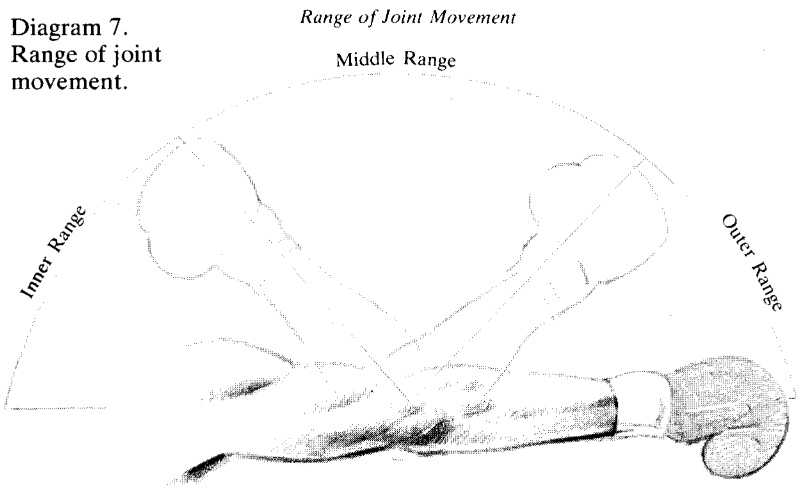
Closely connected with speed training is the need for flexibility work and relaxation training. Speed of the rotation of the trunk requires specific exercises to increase flexibility of the hips. A relaxation programme should be interwoven into the stretching routine which should round off all training sessions as part of the traditional groundwork. Only by learning to control the precise degree of tone of muscles will a boxer be able to induce the optimum level of contraction which gives maximum speed of movement.

Flexibility

The degree of movement at a joint is limited by the structure of the bone, muscle tightness, tendons and the strength of the restraining action of the ligaments. Nerve cells called stretch receptors are found in the connective tissues. These receptors are nerves which control the degree of contraction in the muscles surrounding a joint. The prime movers, the muscles acting concentrically (shortening), are called agonists, the opposing muscles relax according to the speed and degree of movement of the joint and are called antagonists. There are wide individual variations in flexibility, but also on a day to day basis an individual may vary both in static and dynamic flexibility. A coach should recognise that outside pressures at home or work could cause these variations, and accept them as normal.

Many coaches make the fatal mistake of thinking that flexibility is as natural as boxing ability. Styles are allowed to develop which owing to stiffness in the joints, stunt the boxer's development. Faulty techniques are interpreted by the individual concerned accordingly. Not only can specific exercises correct the imbalances in nature but every boxer should work at improving his flexibility. Good flexibility is desirable because a joint with a large range of movement has a wide arc when working in its middle range (see diagram 7). The middle range is the most powerful and effective of the three. With improved flexibility less energy is expended in the

Diagram 7.
Range of joint
movement.



performance of skills as effort is not wasted in overcoming a more limited range of movement. Flexibility work has to be done with control. If movement occurs jerkily the stretch receptors will activate the antagonists and contract against the desired line of movement.

Greater flexibility will improve a boxer's technique. He will possess a fuller extent of movement, a greater degree of rotation and a smoother technique when working in the more powerful middle range. A more powerful attack can be launched from a wider range and from greater angles. The ability to ride, slip and weave will be improved. Muscle tightness produces stress which leads to injury. Flexibility work can therefore help to prevent injury.

Flexibility, speed and relaxation are all interdependent. Any strength training programme should be accompanied by an appropriate amount of flexibility work to ensure that the increased strength level does not decrease the range of movement.

Both indoor and outdoor training sessions should include static and dynamic flexibility routines. Arms and shoulders, neck, trunk, hips, dorsal area and ankles all require inclusion in a basic flexibility routine which should be specific to the individual's needs. A general dynamic routine should aim at flexing the major joints to the limit of their full range of movement as part of the warm up. Specific flexibility exercises are perhaps best left to the latter part of the training programme when the body is supple and the joints more pliable. It should be remembered that a true flexibility routine is also a strength session, and should therefore follow the skill work.

The boxer should localise the joint to be flexed and work wherever possible on a diagonal plane each joint to be taken to the outer range and held. A slow muscular contraction holds the end position with perhaps discomfort – but *not* pain, for approximately five seconds. Joints should be stretched alternately. Progress will be very gradual – diagrams show examples of suitable exercises.

When boxers can accomplish individual flexibility work without undue difficulty, partner work can be attempted.

With both approaches a thorough warm up is essential to put the boxer both physically and mentally in a state of readiness and to programme his muscles to adopt the optimal muscle tone. This will help the antagonist muscles to relax in the stretched position, so that the agonists can contract more fully and therefore increase the range of movement. The passive stretching involved in partner work has a valuable contribution to make but should be used with discretion. Any improvement in the range of movement at a joint should be balanced with an increase in strength in the new range of movement. Best results are obtained by experienced coaches working with mature boxers. Figures 93–119 show examples of this type of approach.

General flexibility Exercises.

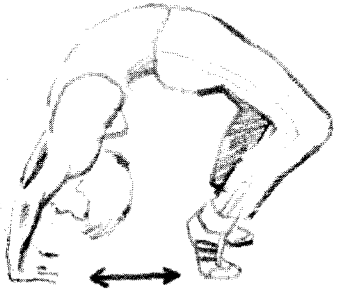


Figure 93. Gross flexibility.

Figure 94. All-round.

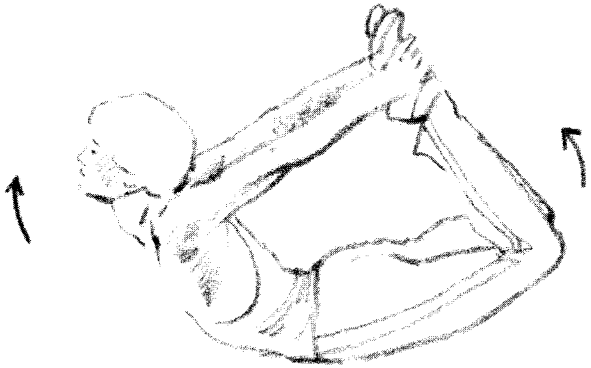
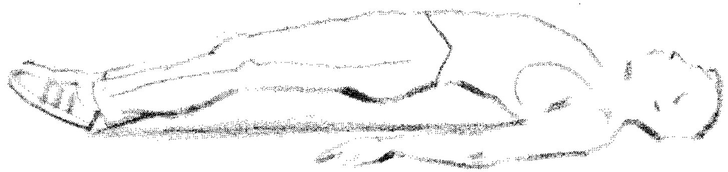


Figure 95. Gross flexibility.



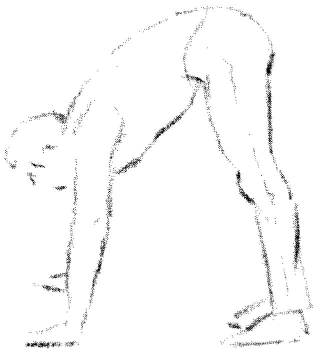


Figure 96. Hamstring.

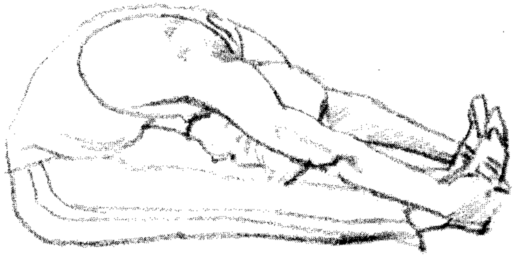


Figure 97. Hamstring.

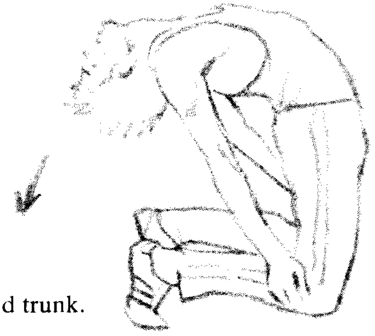


Figure 98. Quads and trunk.

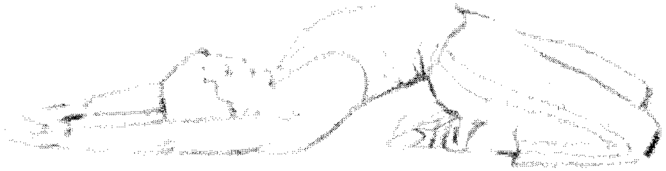


Figure 99. Quads.

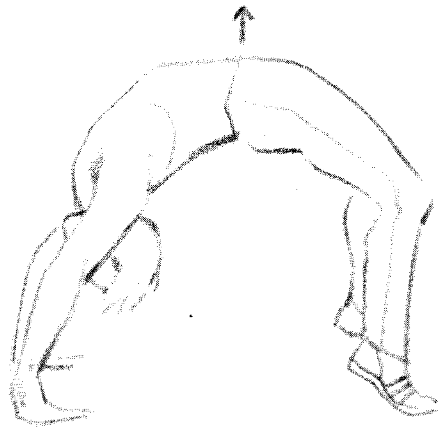


Figure 100. Quads and trunk.

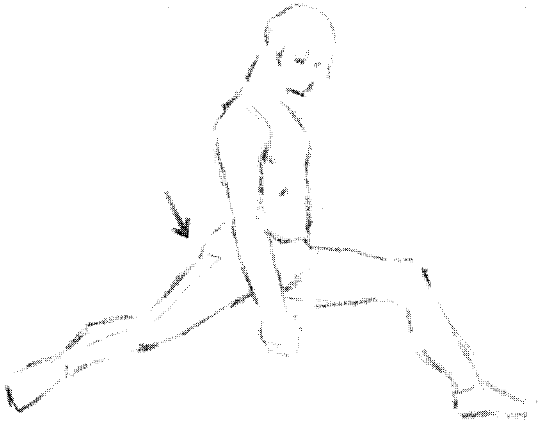


Figure 101. Hip Joint.

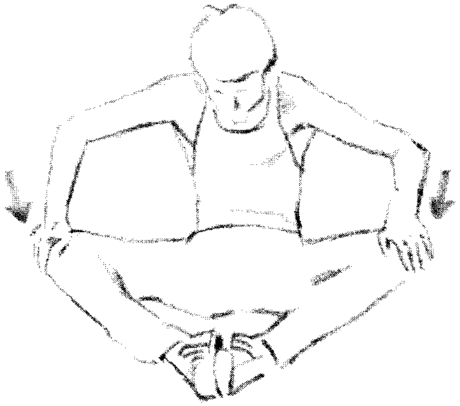


Figure 102. Hips and pelvis.

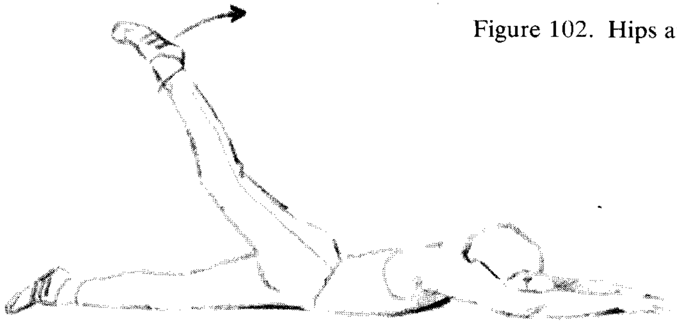


Figure 103. Lower back.

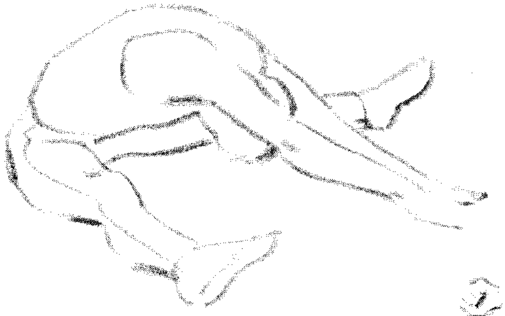


Figure 104. Lower body.

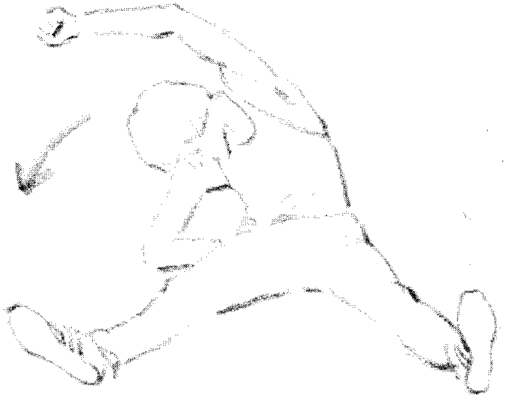


Figure 105. Trunk.

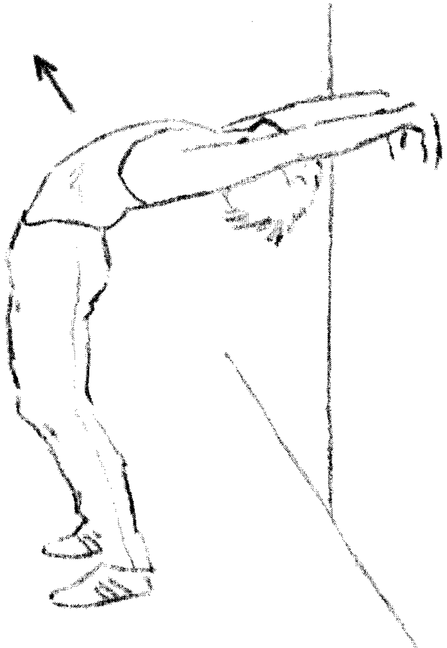


Figure 106. Arms and shoulders.

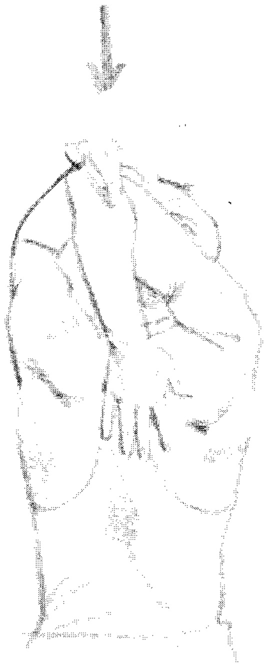


Figure 107. Arms.

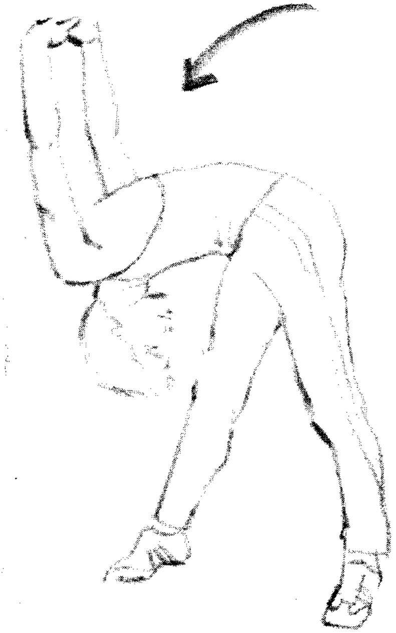


Figure 108. Shoulder.

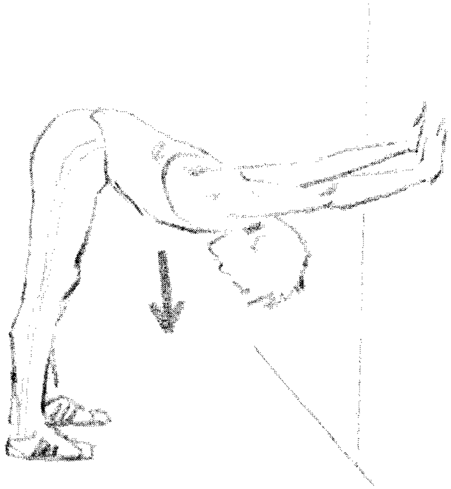


Figure 109. Arms and shoulders.

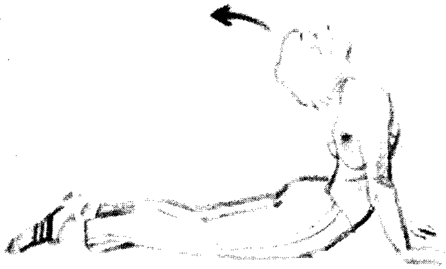


Figure 110. Dorsal and neck.

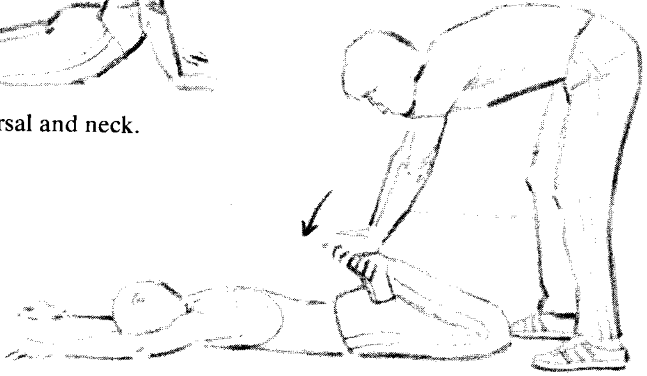


Figure 111. Legs.

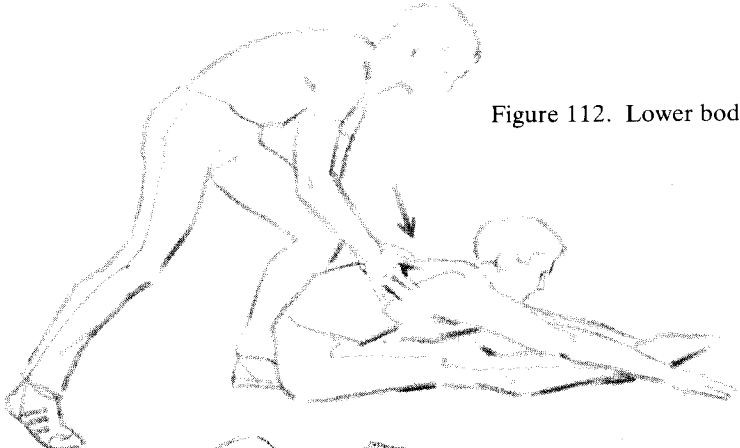


Figure 112. Lower body.

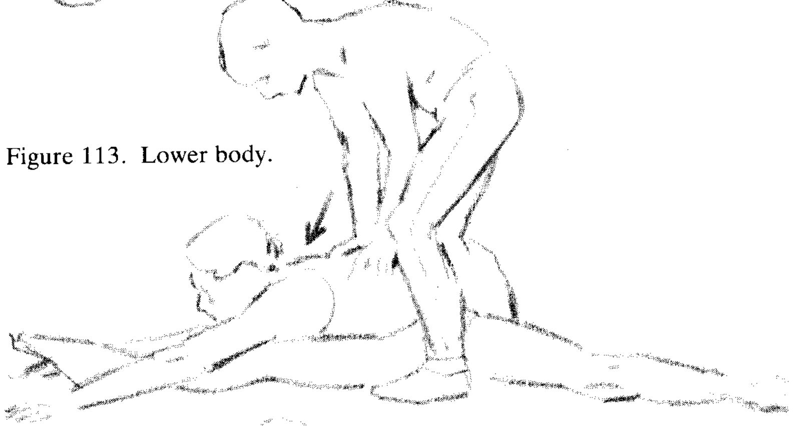


Figure 113. Lower body.

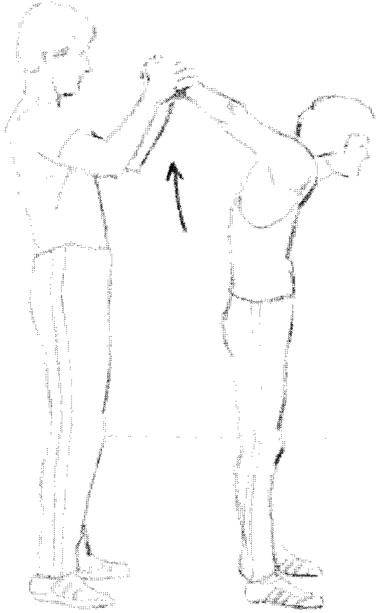


Figure 114. Arms and shoulders.

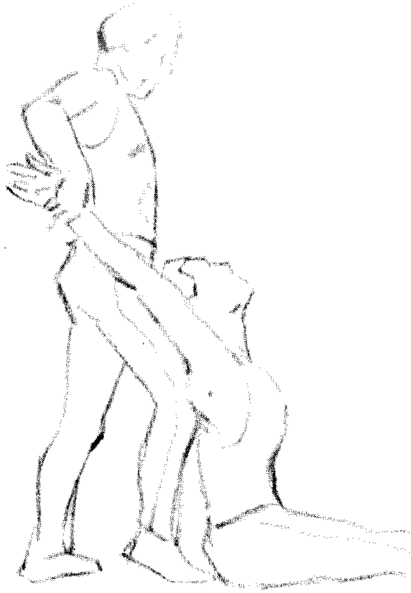


Figure 115. Arms and shoulders.

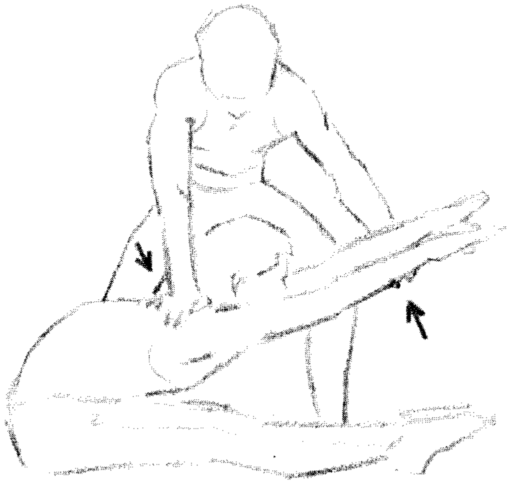


Figure 116. Arms and shoulders.

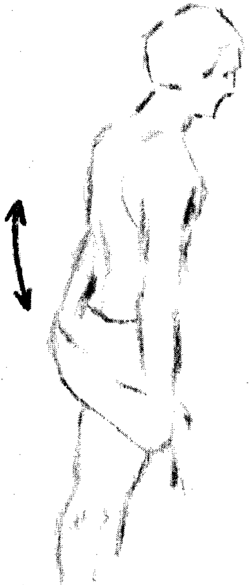


Figure 117. Arms and shoulders.

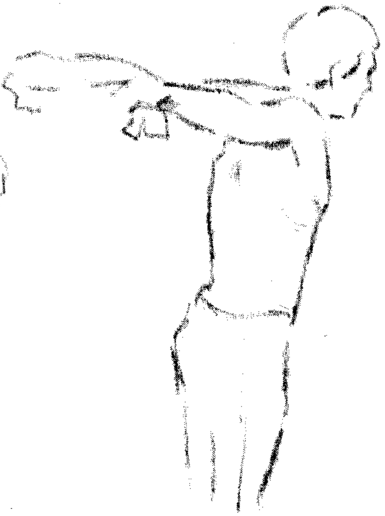


Figure 118.
Arms and shoulders.

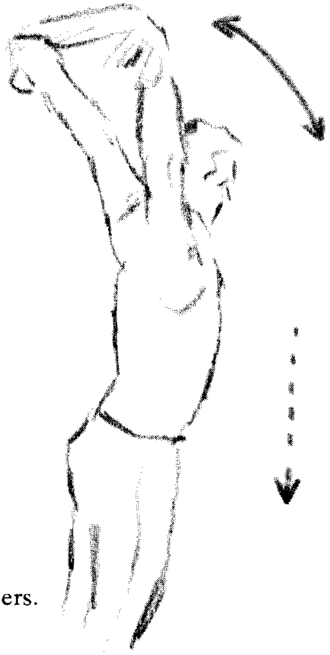


Figure 119.
Arms and shoulders.

Co-ordination

The learning of skill is dependent upon the level of a boxer's co-ordination. Co-ordination is the final link between innate ability and the competition ring. A high level of co-ordination can only be achieved if the other fitness factors have not been neglected. Flexibility of the joints, an optimum degree in muscle tone, the speed of explosive contraction, are all essential requirements. Co-ordination involves the timing of the contraction in the sequence of muscle groups involved. This involves the whole flow of the skilled movement and the judgement of distance between boxer and opponent in attack and defence. Motor nerve impulses are the means by which the brain sends out signals to co-ordinate the muscle contractions. The action of nerves can be compared to an electric cable along which a current is passed in order that change is effected. The cause of the current is the stimulus and the current itself is the impulse.

Some boxers are naturally well co-ordinated. They move easily, their general timing is good. Precision and economy of movement are evident. Others will need to concentrate on associated areas of training already mentioned on which good co-ordination depends. Having established a better physical basis specific skill work should improve markedly if use of the mental powers is commensurate with the physical effort. Body awareness and control allow an easier assimilation of skilled movement with fewer errors. The process of grooving skills to a reflex level becomes more organised. Energy is used more economically and specific training takes place in the muscle itself.

Amateur boxing is a moving, dynamic sport requiring a high level of skill and co-ordination between foot, hand and eye. Traditional training methods have evolved ways of improving co-ordination. All punch bags and balls make a contribution as the boxer aims at striking a moving target. The lighter the bag being struck the more adjustment in footwork required. Ability levels should be considered. A floor/ceiling ball or stand ball help a novice co-ordinate eye with hand. The value of these pieces of equipment is perhaps limited by their predictability. The coach needs to experiment with different approaches to co-ordination training. Acceptance of new methods should be based on the maxim 'the ends justify the means'. Perhaps skipping is a prime example. Whatever the apparent limitations an objective analysis of the transfer value of skipping to the competition ring may produce, nevertheless skipping retains its first place when evaluating methods of improving co-ordination of hand and foot. Generally the higher the number of common factors between the training and competition situation the greater the degree of transfer in all aspects of skill work.

Psychology

Various references to the application of fundamental psychological principles have been referred to in other chapters. The concept of competition involves preparing the boxer mentally and physically for the short term and long term goals. It has been stated that training involves the conditioning of the mind as well as the body. The coach's need to approach all training including the acquisition of skill from an individualistic point of view has been underlined. What should be clear is that the coach must be able to analyse each boxer as comprehensively as possible, and then apply this information to compiling a psychological profile of the boxer in terms of personality, drive and temperament. This profile should then shape his approach to the boxer in training and competition. The following should assist the coach in his analytical process:

Background (his family, occupation, home, hobbies, friends, outside interests)
Ambitions (at work, in life style, in boxing)
Aggression (hostility level socially, in boxing)
Stability (steadfastness, uniformity of temperament)
Extraversion-Intraversion (degree of exhibitionism in company – quiet, retiring, unassuming)
Sociability (acceptance by people, ability to mix)

Heroes (identification with a top boxer or personality)
Self-confidence (amongst his fellow boxers, amongst strangers, ability to make decisions in competition)
Reaction to criticism (makes more determined/loses confidence, ignores, accepts)
Tolerance to pain (in training, in competition)
Reliability (attendance at training sessions, punctuality)
Reaction to success (attitude to publicity, acclaim)
Reaction to failure (motivates to greater efforts/loses heart and interest)
Sense of responsibility (as a club member, as a person)
Acceptance of authority (in society, in training and competition)
Reaction to the big occasion (overawed by/stimulated to new heights in performance)

The coach can use this information in determining basic attitudes such as his reason for boxing, the need for success. He will in addition gain invaluable knowledge of the boxer's life style which should be a major factor when interpreting training and competition performances. A diet lacking in nutritional value could well be such an example. The coach–boxer relationship can then be shaped on a more factual footing. To ignore shortcomings through ignorance is as sinful as looking through 'rose tinted spectacles'. For at whatever level the boxer is competing, regardless of ability, the coach should be concerned with establishing a coach–boxer relationship which matures with time. Self-discipline, self-registering and self-analysis, should gradually make the boxer more independent of the coach. This can only occur when the coach's philosophy includes an awareness of the need to understand his boxer as fully as possible.

6

CIRCUIT TRAINING

There is no one method of training for amateur boxing which will produce the desired level of fitness in all the necessary areas. Principally, there are four aspects of the conditioning programme, gym work, running, circuit training and weight training. Only by balancing all four approaches in a comprehensive programme will the coach be able to cover the areas of fitness mentioned in the previous chapter. To omit any one of the four will produce deficiencies in fitness which will be highlighted by the pressures of competition. Preparation for amateur boxing is not divided into completely separate areas rather all are interdependent. A strength schedule may well improve muscle endurance, increase speed, whilst having some spin-off effect on flexibility. The priority is the gain in strength, but not to the total exclusion of other benefits. Each area of training should be approached from this point of view. Though its role is unique in the contribution it makes to the conditioning programme, it is but one part. By careful planning a coach can shape all four aspects of conditioning into a harmonious fitness programme emphasising the aspects of fitness which are necessary for the time of year and the needs of the individual boxer.

Perhaps the coach's first consideration in determining the fitness programme, should be an awareness of its relation to skill. As mentioned previously fitness is the platform on which skill is based. Never should a fitness programme be loaded in favour of conditioning in preference to skill learning time. Though some boxers will require a higher degree of fitness to compensate for their lack of innate boxing ability all should follow a balanced skill and conditioning programme with skill predominating. Undoubtedly there will be certain restraints as the programme moves from the theoretical to the practical situation. The club coach is more concerned with the practical considerations, the number of boxers in his club, the frequency and duration of training sessions, the equipment and space available. To slant the programme according to the needs of the individual, requires further thought. He should consider age, maturity, skill level, experience, occupation, short and long term goals and level of aspiration of all the boxers. Flexibility in approach will be needed to modify or even change completely the planned programme should this be necessary as the coach appraises the way in which the session is progressing by the reaction from the boxers. The degree of success he experiences will be proportionate to the preparation undertaken. Should the coach expect his boxers to be conscientious, then he must lead by example. Only by carefully planning each session will the coach develop his own philosophy and the programme which he offers will then be purposeful, varied and enjoyable.

Circuit Training

Circuit training should be a major feature in every amateur boxing club as a means of improving general or specific fitness. A circuit is a series of exercises or activities combined in a sequence, which produces a degree of stress in one or more of the fitness components. The body will learn to compensate for the demands made on it by the process of adaptation. If the circuit is performed at regular intervals with the same resistance, then the previous level at which the muscles worked under stress (overload) will gradually become the norm, and the circuit will be performed with ease. This is essentially what fitness training is about, the gradual adjustment of the body to new work loads. The degree of overload must be controlled by only gradually increasing the resistance and severity of the exercises when the individual shows his ability to cope with the previous load. Depending upon the type of circuit being undertaken, improvement may be reflected in the increased number of repetitions achieved, the

reduction in time taken, or the ease of recovery.

Circuit training can play a major role in developing a boxer's cardiovascular endurance, respiratory efficiency, local muscle endurance and strength. There may be some improvement in flexibility, speed or co-ordination but these are secondary areas which benefit indirectly. These direct factors may be approached as part of the general fitness programme's aim to 'get fit to train', or be considered in the light of specific fitness. General fitness is the core of fitness which the boxer needs in early season. It lays the foundation for the more specific programme to follow. Specific fitness involves knowledge of the precise pattern of movements involved in the essential skills of boxing.

A circuit can be shaped to suit any situation either indoors or outdoors with or without equipment. Space available is immaterial. Any number can be catered for, with imagination a coach can create a number of circuits to suit his own specifications. With the right level of motivation there will be a high work rate with substantial gains in the factors covered. Circuit training enables the performer to see the improvement for himself thus motivating him to further heights. Circuits can also be loaded to the individual's needs. This is especially important when the occupation, age and physical factors are taken into account. Consequently, a building site labourer should not be working for gains in general arm and shoulder strength! Circuits for schoolboys should be based on competitive games requiring whole body activities, such as running, jumping, climbing – where the body works against its own weight. Though some of the circuit values remain the same the presentation is more suited to meet their physical, educational and emotional needs. Competition amongst the older club members must be watched closely for the coach is essentially concerned with individual progress. Record charts showing performances appearing on the club notice board (and *all* clubs should have one) can stimulate some healthy competition. But physical differences in co-ordination, length of limbs, height/weight ratio, make straight comparisons rather meaningless. The coach should concern himself more

FITNESS FACTORS	GENERAL			SPECIFIC			
Type of Circuit	Cardio-Respiratory	Strength	Muscle Endurance	Strength	Power	Muscle Endurance	Skill
Fixed Load	✓	✓	✓	✓		✓	
Target			✓			✓	✓
Individual	✓	✓	✓				
Power				✓	✓		✓

Diagram 8. Linking types of circuits to areas of fitness.

with intrinsic rather than extrinsic motivation and with progress by the individual at his own optimum rate.

The precise nature of and purpose for each exercise or activity should be understood in broad terms by the group. Should they see the value of the activity and the need to push beyond the pain threshold they will respond in terms of effort and reluctance to cheat. Each circuit will produce a fitness specific to that circuit. Therefore there is a need not only for the exercises to get progressively more difficult but to use a variety of circuits. Generally muscle groups should be alternated and exercises arranged so that no major muscle group is featured in two consecutive exercises. All exercises should be practised before the circuit is attempted. Quality of performance is important but allowances might be made for uncoordinated boxers whose manner of performance should be accepted when 'adequate'. Before any techniques are practised or any circuit work undertaken a thorough warm-up is essential.

Types of Circuits

There are basically four types of circuits, individual, fixed load, target and power. All four have contributions to make to a club's conditioning programme. Though the coach should approach each as a clearly defined structure each can be modified to suit the coach's schedule. The structure of each type dictates the precise role that it plays. As with all aspects of training originality in planning and presentation is needed. The following indicates a basic strategy for the compilation of circuits and though here the areas covered have been separated, it nevertheless represents how each type of circuit can be used to best effect:

Fixed load circuits

As the name suggests the load is set and improvement is shown in the time taken to complete the circuit. This approach is especially suited to an introduction to circuit training. It is easy to organise and can be performed with or without equipment. The number of exercises can vary from 5 to 15, the number of repetitions from 5 to 30 – depending upon the factors covered. One, two or three circuits can be completed in a training session. For rest intervals between circuits, the coach should always be mindful of the fitness level of his boxers but sufficient rest should be given to ensure the quality of the following circuit. The nature of the exercises and the dosage set will depend upon the factors mentioned earlier in this chapter. Perhaps the simplest method of presentation is showing colour-coded circuit cards with three degrees of intensity (diagram 9).

1.	
BURPEES	
RED	10
YELLOW	12
GREEN	15

2.	
BOUNCE PRESS-UP	
RED	8
YELLOW	10
GREEN	12

Diagram 9. Examples of fixed load colour circuit cards.

A record should be kept of individual progress as the boxer begins perhaps at two laps of red and progresses to three laps of yellow. This would be over a period of some weeks depending upon frequency and intensity. Times recorded on a chart will motivate boxers to improve and introduce competition when desirable. It does not follow that all attempts at circuits should be monitored by the coach. Times can be recorded after a period of performing the circuit as a training load without being timed. It is vital that all charts be kept up to date. Otherwise the apparent disinterest and carelessness displayed by the coach, may quickly transfer to the boxers.

Diagram 10. Fixed load progress chart.

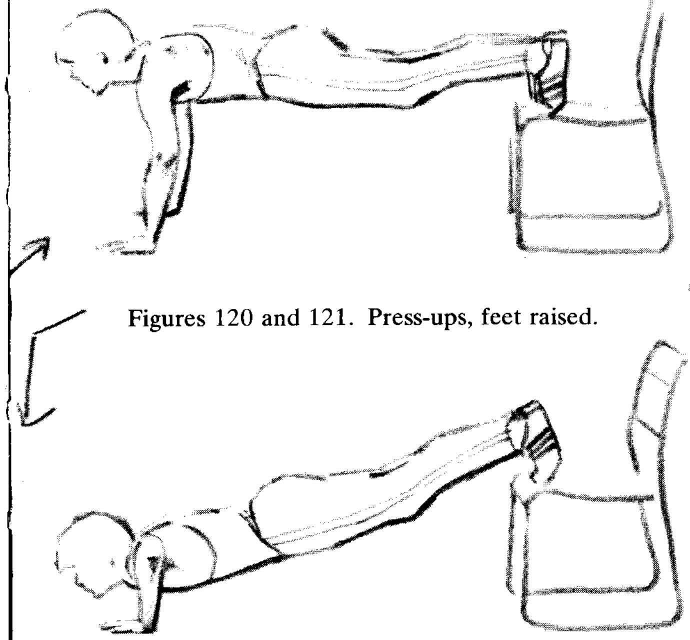
Name	Date	Colour	Laps	Recovery	Time Taken

A type of general fixed load circuit which has proved to be very popular is known as the 'ton-up' circuit. It derives its name from the ten exercises by ten repetitions load equalling 100 repetitions. No apparatus is required and it can be used

indoors or out. All the coach needs is to have a card in his pocket with the fixed exercises listed. Again it is the time taken to complete the one, two or three laps that is important. Should the age or fitness level of the performers demand a less severe load than one full lap, ten exercises with five repetitions could be set gradually building up to the full circuit. The next progression is one full ten by ten circuit followed by one ten by five circuit, and so on until eventually three full circuits are performed of ten by ten. Improvement will then be marked by reduction of time taken to complete the three laps and in the recovery needed between each circuit. A ton-up circuit could include the following exercises, note the alternation of the major muscle groups involved:

1. Press-ups on fingers, or feet.
2. Tuck jumps.
3. Trunk curls.
4. Press-ups.
5. Squat jumps.
6. Pike sit-ups.
7. Burpees.
8. Dorsal raise (photograph 63).
9. Bounce press-ups.
10. Pike jumps.

Ton-up Circuit



Figures 120 and 121. Press-ups, feet raised.

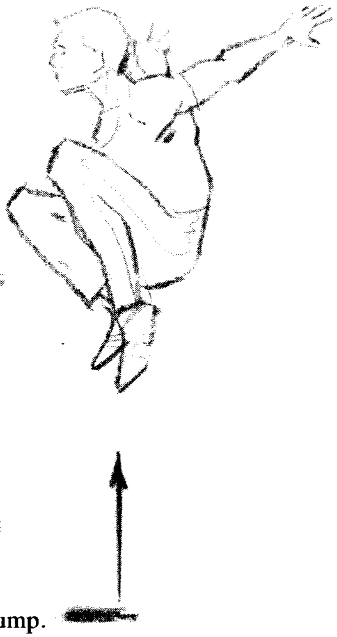


Figure 122. Tuck jump.

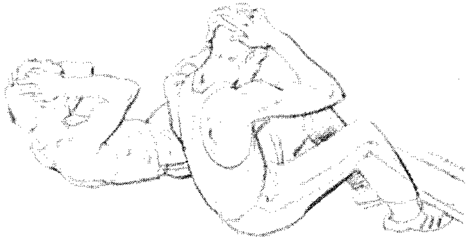


Figure 123. Sit-ups.

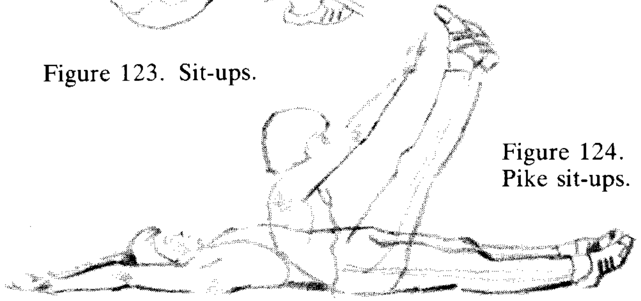


Figure 124. Pike sit-ups.

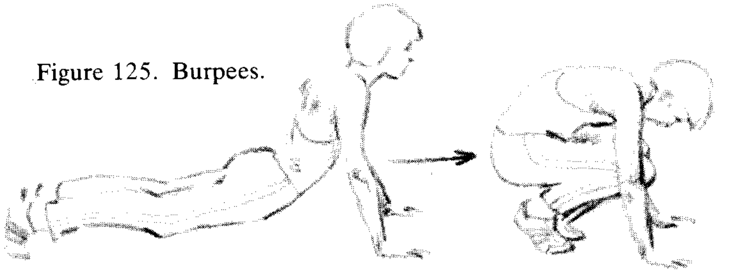


Figure 125. Burpees.

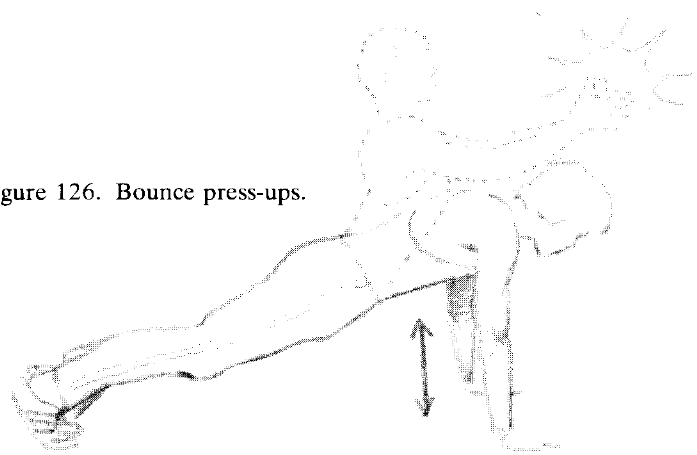


Figure 126. Bounce press-ups.

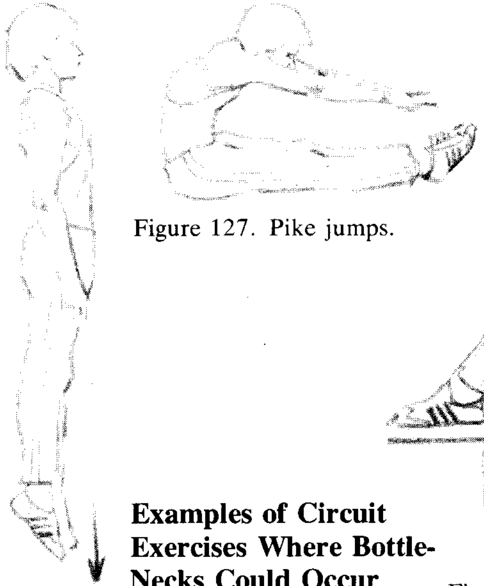


Figure 127. Pike jumps.

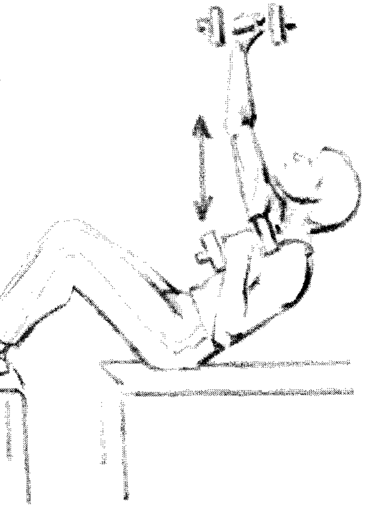


Figure 128. Held alternate press.

Examples of Circuit Exercises Where Bottle-Necks Could Occur

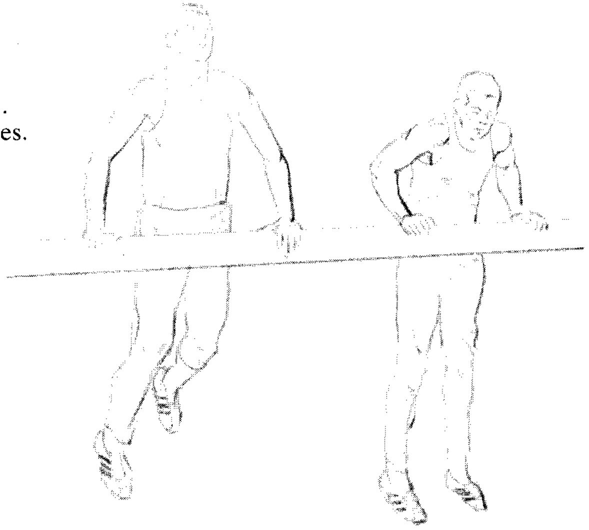


Figure 129. Jump heaves.

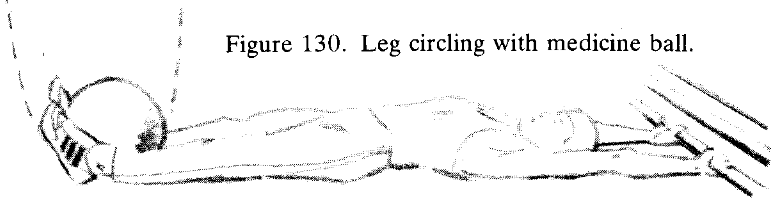


Figure 130. Leg circling with medicine ball.

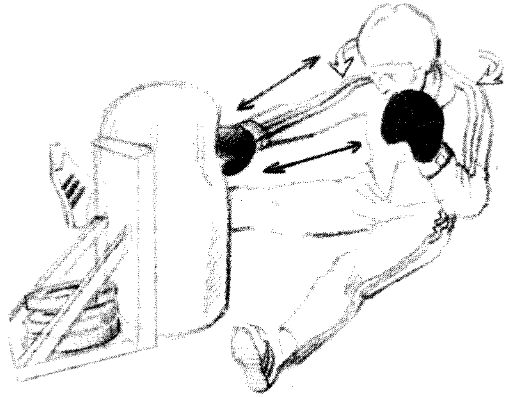


Figure 131. Seated non-stop punching.

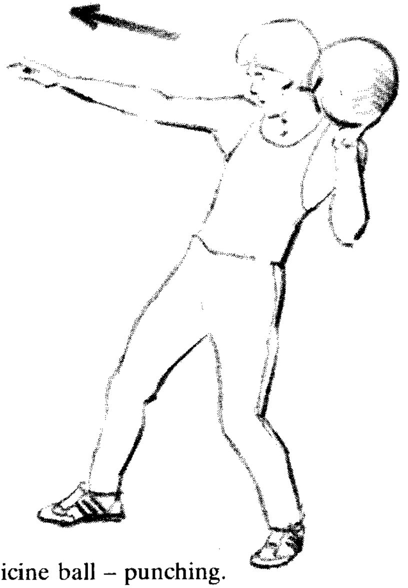
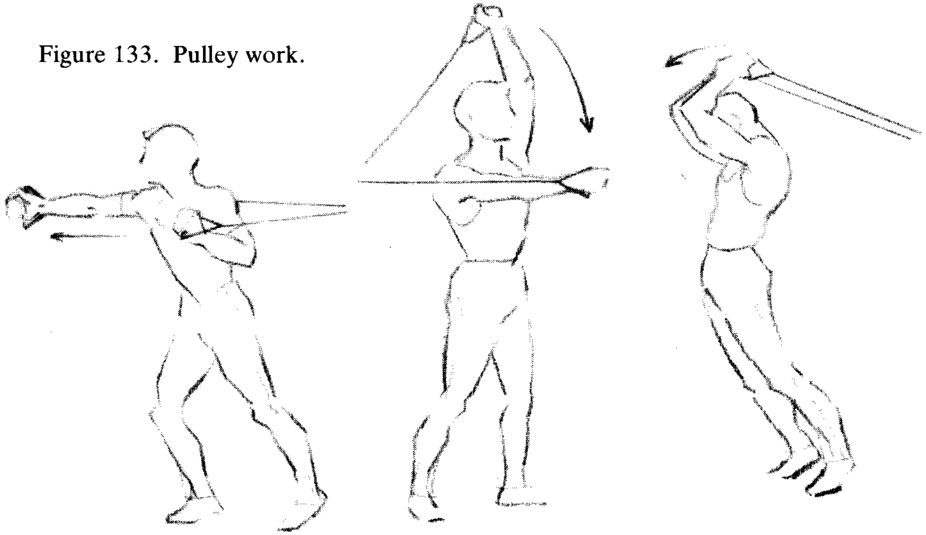


Figure 132. Medicine ball – punching.

Figure 133. Pulley work.



There are numerous exercises which can be incorporated into a fixed load circuit. With an eye to other sports a discerning coach can soon compile a list of exercises and activities which suit his club situation. Examples of suitable exercises are given, with attention being brought to the principle that owing to the muscle mass involved exercises with explosive leg drives are particularly effective in heart/lung stamina circuits. Organisation problems should be minimised with careful planning. Where exercises involve use of equipment (weights, benches, dumbells, mats etc.) care is needed to ensure that no 'bottle necks' occur with queues forming when a number of boxers are involved. This can be overcome by

(i) Allowing for an extra couple of 'fast lanes' for the fitter boxers to overtake their slower clubmates.
(ii) Staggering the starting time between groups performing the circuit. Releasing the groups at gaps of 30 seconds or one minute; this also provides competition for the later starters to catch up with the leaders. The time gaps between the groups starting can be deducted at the end of the circuit to give their actual circuit time.

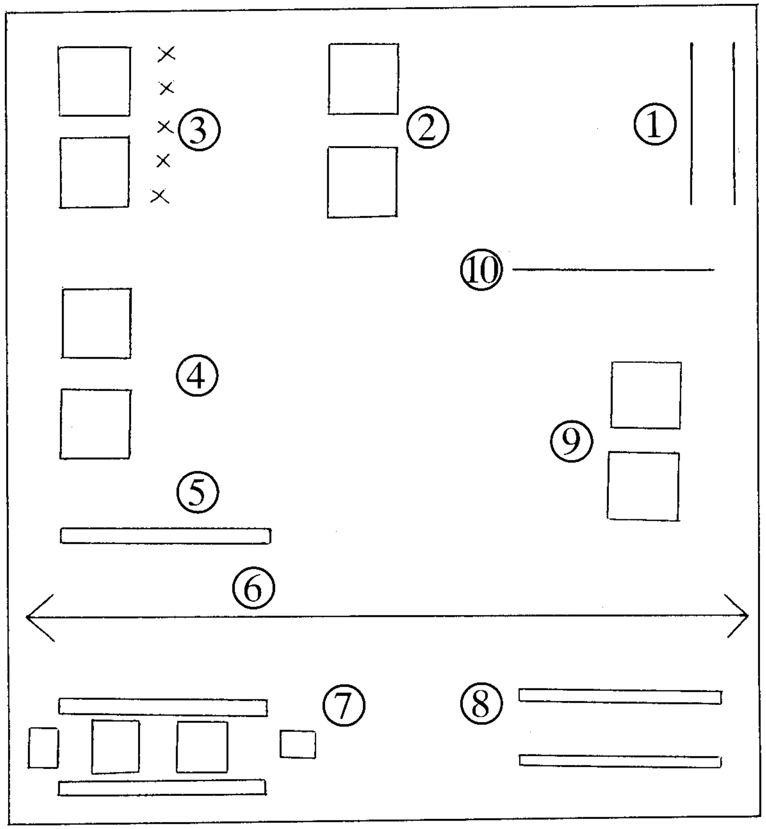
Working on the principle of overload but still retaining the same exercises in a circuit, progression can be made by

(i) Increasing the number of repetitions at each exercise.
(ii) Where weights are involved, increasing the poundage.
(iii) Where body weight is the resistance, increasing the angle of the body to ensure an increased level of stress.

A typical fixed load circuit as used by the ABA National Squads at the National Sports Centre, Crystal Palace, is outlined in diagram 11.

Individual circuits

The great advantage of the individual circuit approach is that it is by its very nature loaded to the individual's needs. Activities are made out with the alternation of legs, arms/shoulders, trunk, neck, body part rotation as for all circuits. Working in pairs the maximum number of repetitions



KEY

Exercises	Reps	Exercises	Reps
1. Dips (parallel bars)	15	6. Shuttle Sprints	10
2. Burpee Jumps	20	7. Dips (between benches)	15
* 3. Sit-ups	15	8. Astride Jumps (bench)	25
4. Dorsal Raise	20	9. Bent Knee Sit-ups	25
5. Jump Heaves (beam)	15	10. Chin Heaves (bar)	10

* with weights

Diagram 11. General fixed load circuit.

they can score in one minute is recorded on the individual's record card. Whilst one works his partner counts. The number achieved is then halved and this becomes the training load to be done in three circuits which is timed. Improvement is shown in the reduction of time taken to perform the circuit. When the time approaches 10 minutes fresh maximums are attempted and a new training load set accordingly. Care should be taken to ensure that no bottlenecks occur as the boxers move round at different speeds. But with careful planning this can be avoided and individual circuit training can play an important role especially in early season work. By its very nature individual circuits are best used in well equipped gymnasiums with a plentiful supply of apparatus and equipment. Boxing clubs using school gymnasiums would be especially suited. The 10 exercises or activities can be either whole animal type or localised according to the equipment and space available. Should the coach feel that three laps at half maximum is insufficient, then he can increase the severity by the boxers doing two laps at two-thirds maximum.

Target circuits

The same method of procedure is adopted with target circuits. The time is set and the boxers are required to perform as many repetitions as possible within the specified time. Exercises should be more specific to the sport and loads adjusted to the age, fitness level and length of the bout. Speed of movement is vital and the use of light weights where appropriate gives resistance to the exercises and enables progress to be made objectively. Individual record cards stimulate interest and provide motivation to improve. As with other types of circuit training such cards should be used with discretion by the coach, in terms of concentration and effort required it is not desirable that a boxer should be struggling to improve at each circuit session. Rather his work should be phased to allow for easy training sessions as well as those of maximum effort. Having established a platform of fitness in early season with other types of circuits, mid and peak season should see the target type as the basic diet (diagram 12).

For senior boxers an introductory target circuit might be six exercises of a 15 second duration, progressing to six exercises at 20 seconds and finally six exercises at 30 seconds. The latter is especially desirable as it gives the basis of a three minute round. Though recovery between exercises should be kept to a minimum, sufficient recovery time should be allowed to

Name ________________ R-Number of Repetitions

Exercise	R							
Held-Alternate Press								
Dorsal Raise (with turn)								
Bent Arm Lateral Raise								
Sit-ups (with twist)								
Squat Jumps								
Neck Rolls								
Recovery								
Date								

Diagram 12. Target circuit record chart.

enable the quality of work to be maintained. The specific nature of the exercises involved closely resembling actual boxing demand precision. Having achieved the 6 × 30 seconds level, a further circuit can be added of 6 × 15 seconds and progression continued accordingly until three laps of 6 × 30 seconds are achieved; the ultimate rests between circuits to be one minute. From there it is possible to move on to an eight exercise target circuit, as is now done by some England teams but what is important is that the 30 seconds work period is not increased as this leads to a tendency for the boxer to coast.

The target approach lends itself to a pure skills circuit where some of the essential skills of boxing are linked. This type of circuit can be used by schoolboys and seniors alike. Exactly the same approach can be followed in recording scores and controlling length of recovery. The activities can be made progressively more difficult and by their obvious similarity to the ring situation readily motivate boxers to intensive work output.

Skill circuit (45 seconds at each activity with 30 seconds rest)

1. Feet drive in the basic boxing stance with medicine ball or weight held close to the chest following the numbers as indicated by chalk marks on the floor. Each square is one and a half metres wide and the sequence one, two, three, four is closely followed.
2. Seated with feet astride non-stop punching a bag or hitting area which has been lowered to shoulder height. The distance which the target is positioned for the seated boxer is important as it must ensure that punches are thrown with maximum rotation of the trunk (figure 131).
3. With medicine ball or disc weight held on the chest in a knelt position, rolling, ducking, slipping, weaving and riding movements are performed at speed to the maximum extent of the range of movement possible.
4. Standing close to a wall in boxing stance a medicine ball is driven from the punching position at the wall with alternate hands. The punching action should be snappy and as realistic as possible (figure 132).
5. Shuttles around a four metres × four metres rectangle at speed with the feet consistently in boxing stance and weight disc or medicine ball held at chest height.
6. Pulleys with resistance adjusted to suit the needs of the individual or rubber strands of suitable composition are held at shoulder height in boxing stance. Non-stop punching to maximum extent follows (figure 133).

Power circuit training

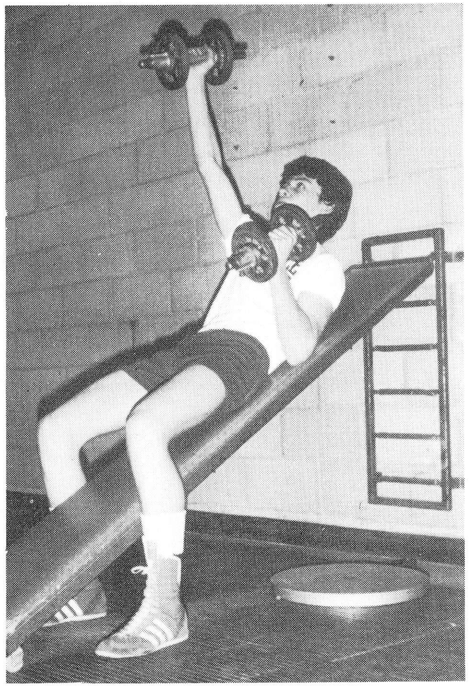
The boxer's need for power has been stressed previously. Given correct application of the principles involved – and preparation by the coach, power circuit training has the advantage of using relatively heavy weights with the pulse rate exceeding 160 per minute. Hence it appears to have a definite cardiac effect, assists the development of local muscle endurance and can improve limb speed, co-ordination and flexibility. Exercises have to be specific to the sport and resistance sufficient to take the boxer to the point of muscle fatigue and no further. Only one lap is advocated and the precautions vital with the handling of relatively heavy weights must be stressed. These are outlined in detail in the section on weight training. The order of the exercises undertaken should reflect the principle that no two consecutive exercises should involve the same muscle groups. A simple understanding of the purpose behind the exercises helps to motivate the boxer. The coach must ensure that each exercise is practised until the technique is mastered. This practice may well be with a weight lighter than that which he will use in the circuit. The following steps are then undertaken:

1. Working in pairs, the boxers find out by trial and error the maximum weight which they can manage in performing one repetition of each of the eight exercises. Two-thirds of the maximum is fixed as a training load.
2. Ensuring that no two consecutive exercises use the same prime movers, each of the eight exercises is then performed with twelve repetitions at the prescribed two-thirds maximum poundage. The length of time taken to complete the circuit is noted.
3. When the time taken to perform the circuit approaches five minutes, five repetitions are added to the training load.
4. Gradually as the time taken drops to around five minutes the resistance must be increased. A further five repetitions should then be added.
5. When the time taken to perform the eight exercises and 22 repetitions is further reduced to the five minute target, all weights can be increased by 10 per cent. The procedure is then repeated.

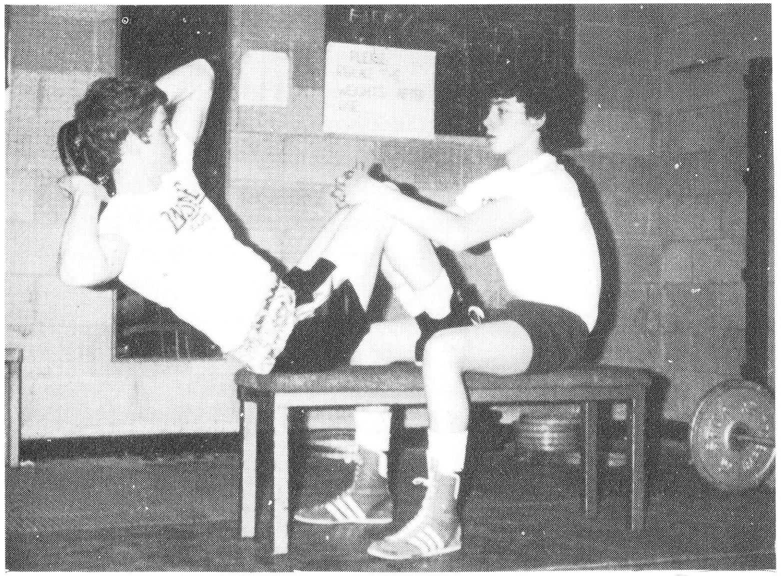
Gains in power depend upon speed and strength. Research has shown that the vital speed is retained in performing exercises at two-thirds maximum poundage. Over two-thirds there will be gains in strength but this is countered by loss of speed. The precise nature of power circuit training lends itself to the closed and early season cycle when both time and the priorities in training allow for a switch away from pure boxing training and an emphasis on fitness factors. Three or four power circuit training circuits per week could be the basic diet, with an on-going flexibility programme ensuring the maintenance of suppleness. During the boxing calendar, there is insufficient time to concentrate on PCT and other factors become more important as competition time approaches. However there is a need to ensure that strength and power levels are maintained. A short but intensive weekly weight training schedule would produce this.

Power circuit

1. Alternate press – inclined bench (photograph 58).
2. Sit ups with twist (photograph 59).
3. Split jumps (photograph 60, A, B, C).
4. Neck rolls (photograph 61).
5. Straight arm lateral raise (photograph 62).
6. Dorsal raise (photograph 63).

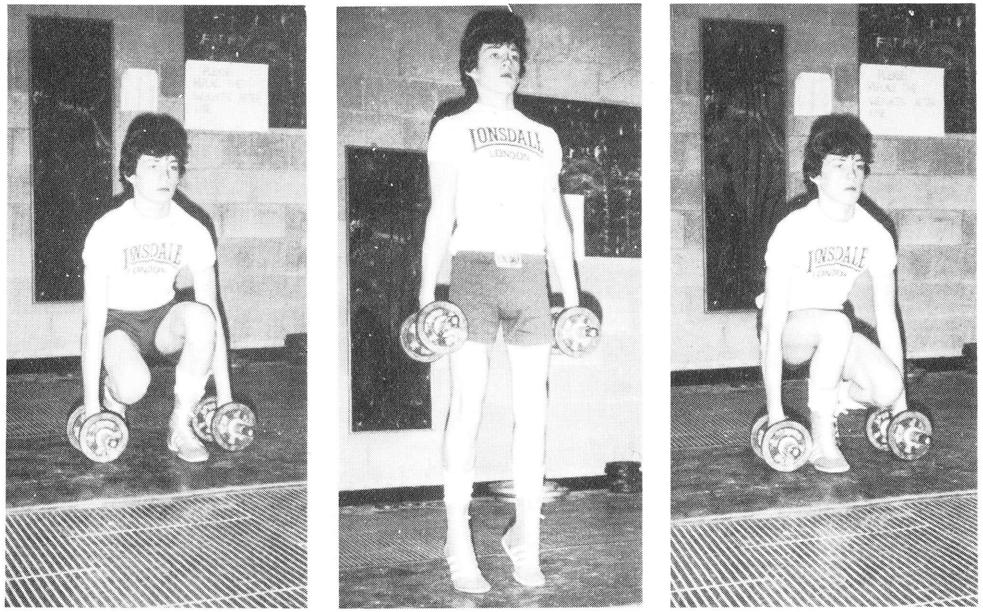


Photograph 58.
Alternate press.

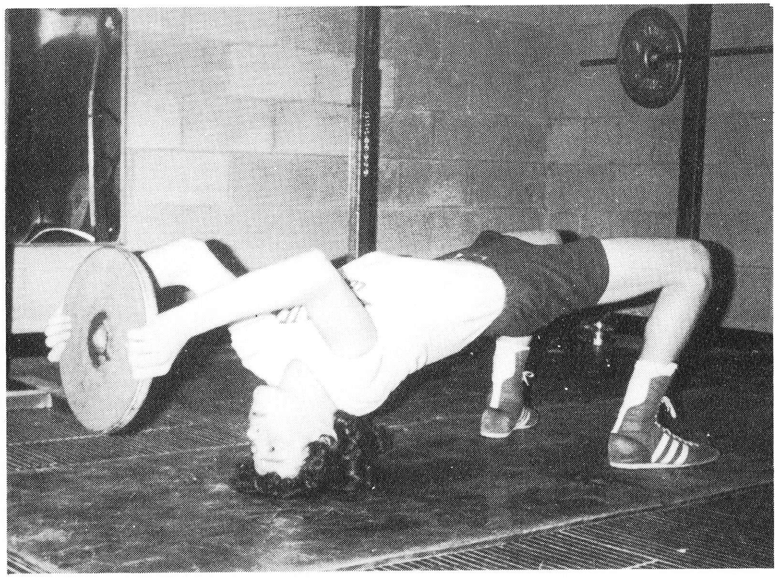


Photograph 59. Sit-ups with twist.

Photograph 60. Split or squat jumps.

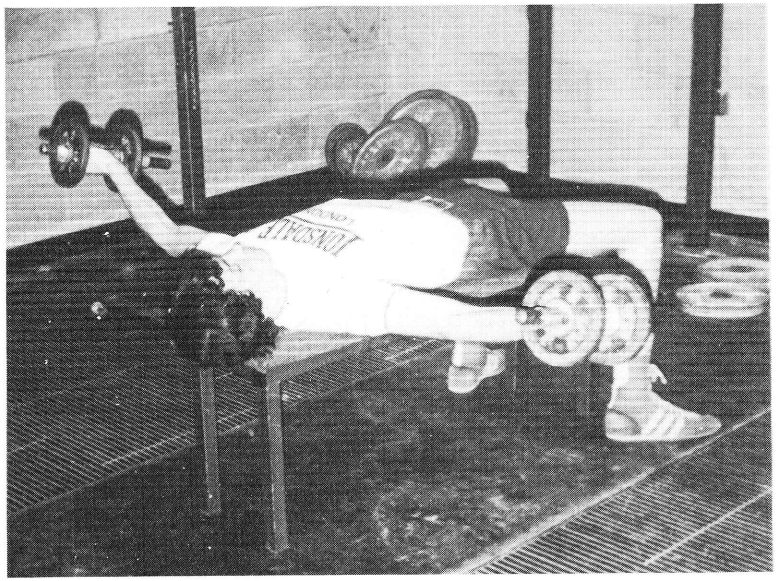


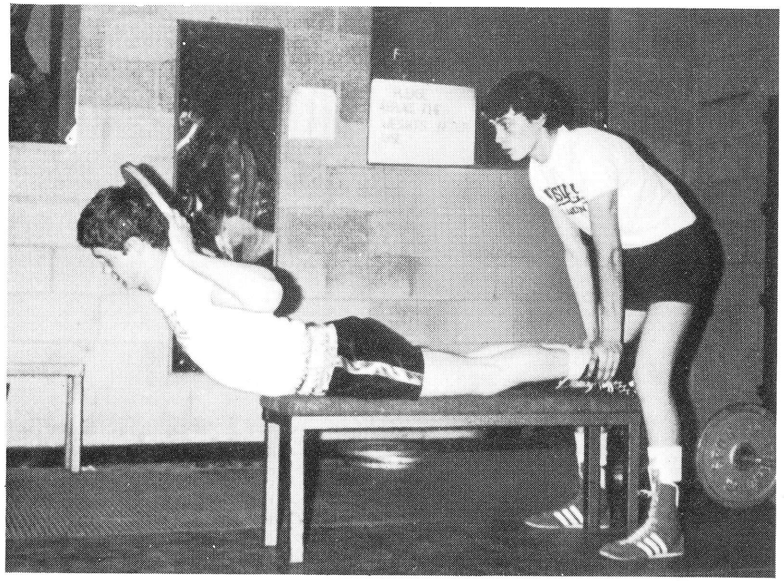
A B C



Photograph 61. Neck rolls.

Photograph 62. Straight arm lateral raise.





Photograph 63. Dosal raise.

7

INTERMITTENT TRAINING

Amateur boxing is a sport requiring repeated bursts of explosive speed. All boxers need to be able to produce quality skills throughout the bout, regardless of the intensity of the pace set by the opponent. Only first class physical condition will allow this especially in the closing minutes of a gruelling contest. The level of fitness will be shown by the speed of recovery between surges of attack or defensive ploys. Fatigue of a general or local nature will produce two symptoms: (i) the quality of punches will deteriorate as co-ordination, sense of timing, judgement of distance, are undermined – and (ii) as the legs lose their drive and defensive techniques become ragged, more punches will be absorbed on the target areas. This leads to a further drainage of physical resources with tired punches missing their target, wasting energy and causing further psychological distress. Circulo-respiratory fitness is always the first to snap. Breathing can no longer be controlled, recovery of movement and relaxation become impossible. Snap disappears from punches. No matter how great the level of ability if the conditioning programme has not prepared him adequately, the boxer's only thoughts will be of survival.

Traditionally the amateur has trained in the same way as a professional boxer. Running and gym work have involved steady state work with the pulse stabilising in the 150–160 range. Such aerobic work develops the body's ability to function for relatively long periods owing to the more efficient oxygen transport system and oxygen uptake (VO_2). In fact, improved oxygen uptake and capilliarisation appear to be the main factors in the development of a boxer's aerobic work capacity. An improvement of up to 20 per cent of the individual's VO_2 is possible, which gives him more available oxygen during heavy exercise. However, as with all aspects of the conditioning schedule the body will – by its adaptation mechanism, gradually adjust to the demands made upon it. The limitation of steady state work is that the pace tends to be set at the beginning of the activity. Hence it is difficult to control the degree of stress in training as the principle of overload decrees. The amateur who trains as a professional boxer courts danger, the fitness requirements are as similar as a runner preparing for middle distance compared to marathon running.

Intermittent training includes all types of approaches to running and gym work where the factor of speed is emphasised in divisions of distance or units of time. It includes interval training, speed endurance and speed work and gives the coach a precise means of regulating the intensity of the training load. Steady state work provides the essential platform for cardio-respiratory efficiency – without which there can be no foundation to any conditioning programme. Though steady state work plays a part in improving a boxer's VO_2, interval training can make an important contribution. Long intervals in the range of 350 to 600 metres will improve a boxer's aerobic capacity, as will rounds in the gymnasium of three and a half to five minutes.

The principles underlying interval training can be applied equally to running and gym work. As the name suggests the physiological benefits derived from true interval work lie in the interval between repetitions. Expressed simply the aim is to increase the size of the chambers of the heart; speed endurance work thickens the heart walls. Both are necessary for the top amateur boxer, both are progressions from a solid base of steady state work. It is important for the coach to be aware of the physiological processes involved when compiling training schedules.

Intense, speed endurance work is not suitable for boxers who have yet to reach physical maturity. Should a maturing boxer undertake a prolonged, intensive speed endurance schedule, he is in danger of limiting the stroke/volume capacity of the heart by thickening the heart wall before the heart chambers have developed in volume. This would leave the boxer physiologically handicapped in reaching his true cardiac potential.

Interval Running

In interval running the distance to be covered can vary from 150–600 metres – with special merit for the 150–250 metres distances. The coach's ability to monitor progress and objectively control the training intensity are but two of the advantages of interval running. Economy in time taken is linked with complete objectivity both in setting training goals and motivating boxers to train hard. Improvement can be measured by the quantity of work undertaken and speed of recovery. There are essentially five variables; the distance to be covered; the speed of each run; the number of repetitions of each run; the recovery allowed between repetitions (or sets); the frequency of the interval run.

1. The distance

Assuming that the hard core stamina and long interval work have been completed in the earlier part of the season, the starting distance for interval work might well be 250 metres. This can be reduced in units of 50 metres as the body adjusts, with 150 metres being considered the optimum. The shorter the distance, the faster the speed.

2. The time set (speed)

Each individual should be set a target or grouped according to natural running ability and fitness level. The more natural the runner the faster should be the target time set. There is a greater need to motivate the less co-ordinated boxers who may well lose heart and interest if not given encouragement by the coach. They must understand the need to run. The target time set should approach seven-eighths of 'flat-out' speed. This will be reflected in the pulse rates but will vary according to 'local' conditions, such as the running surface.

3. The number of repetitions

Gradually the boxer will develop pace judgement which will enable him to balance the effort needed to fulfill the training load set. A whistle blown at a set time by the coach will help him adjust his pace and stride length accordingly. Should the eventual aim be 8 repetitions × 200 metres, then two sets of 4 × 200 metres might be an intermediary goal.

Progress should always be carefully monitored by the coach and the overload principle applied only when the existing training load is well within the ability of the individual boxer, as shown by his pulse recovery.

4. The recovery

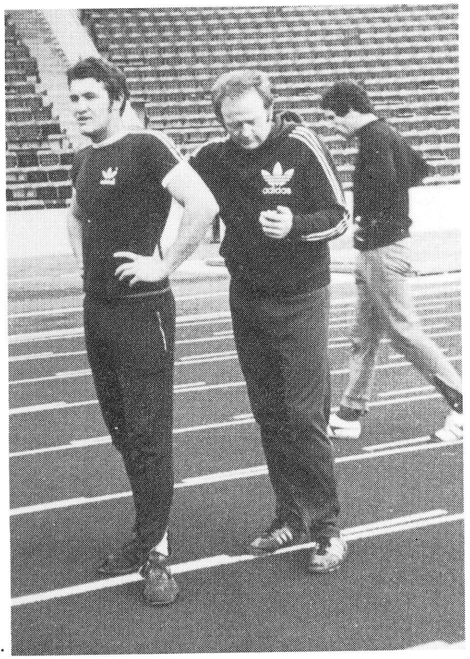
Never should the length of recovery be cut to prevent recovery between repetitions or sets. Otherwise the true value of interval work is lost. A 'jog back' recovery is advocated, either straight back or round a predetermined marker, depending on the length of the run and fitness level. Three times the time taken for the run is the approximate guide but individual reference to the pulse rate is necessary. Although there will be variations, 130–140 is the level at which the pulse will indicate the body's readiness to 'go again'.

5. The pulse count

Photograph 64 shows the pulse being taken – either the wrist or the neck provide suitable sources of pulse counts. During vigorous activity the carotid artery lying between the sterno mastoid muscle and the clavicle can be felt easily with the fingers and a pulse count taken over ten or 15 seconds. The pulse rate per minute is obtained by multiplying by six or four. If there is not time for all boxers to be checked a random or selected cross section will indicate the general recovery level of each group.

6. The frequency

Much will depend on the level of the individual's fitness, the proximity to a contest, his level of aspiration and occupation.



Photograph 64. Pulse taking.

Three runs per week must be considered an absolute minimum. Should the boxer possess the self-discipline to run before work or at lunch time then a fourth and/or a fifth run could perhaps include a steady, sustained or long interval run.

Organisation of an Interval Run

(i) Progress is dependent on the motivational level of the boxers. The goals should be set and the purpose of the run explained before the groups leave the changing room.

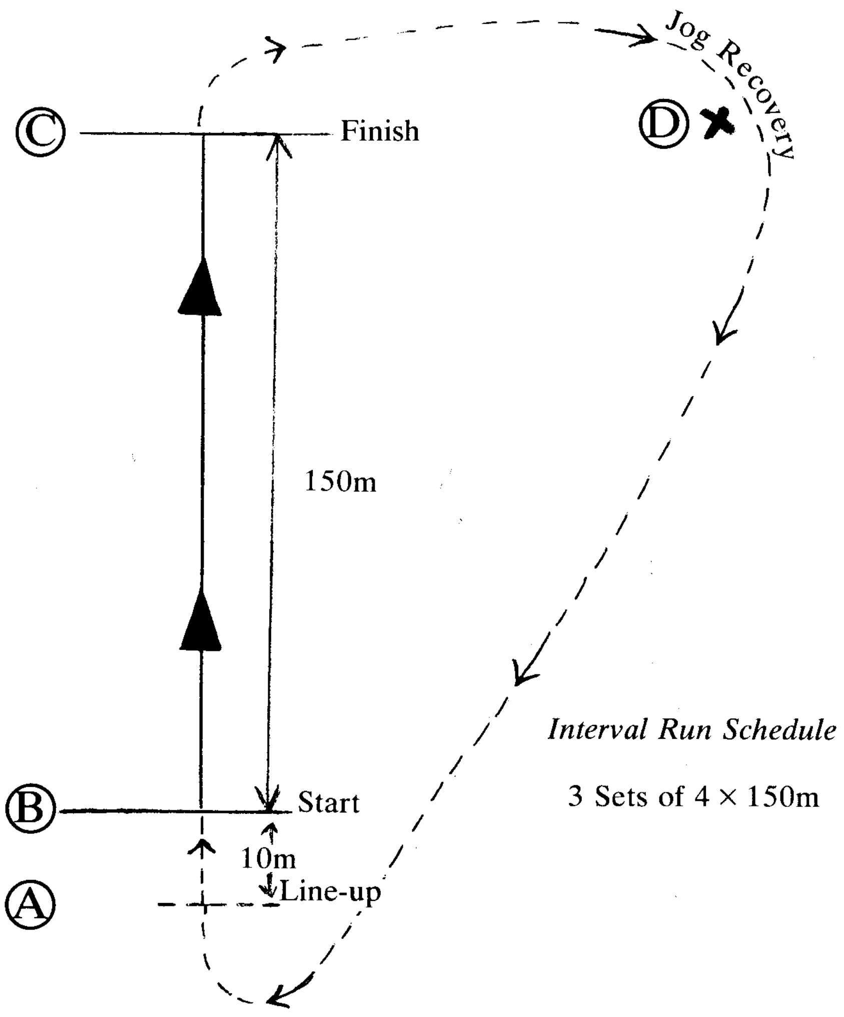
(ii) Clothing and footwear should reflect the weather and type of running surface.

(iii) In preparation the coach should ensure that he has a stopwatch, whistle and notebook and that the run is marked out clearly.

(iv) Boxers are grouped according to running ability, fitness level and boxing weight category.

(v) A thorough warm-up of a 10-minute jogging and stretching routine is essential.
(vi) The run should be set-out as in diagram 13.

Diagram 13. Interval running.



Procedure

The coach stands at point 'C' to call out the times for each group as they finish. Though the number per group will depend on the number running, it should not exceed four. Prior to each repetition the group lines up at point 'A' and rolls forward to begin the run at point 'B'. One member of each group raises his hand as he begins to jog forward from 'A'. His arm is dropped sharply as the group cross the starting line signalling to the coach to start his watch. The coach can blow his whistle at the half-way point of the target time set. As each boxer finishes he is given the time taken with immediate feedback from the coach as to the quality of the run. The boxer should modify the next repetition accordingly. At all times, reference should be made to pulse checks to ascertain individual effort and recovery.

Particular attention should be given to the recovery time. The length of recovery is in the form of a jog around point 'D'. Experience with the exact run will enable the coach to select a suitable distance but three times the time taken to complete one repetition of the interval run is an approximate guide. On reaching point 'A' the groups line up again and at a given signal from the coach, repeat the run until the first set of four runs is completed. Then the coach meets the groups at point 'A' to check pulse level recovery before starting the second set of four repetitions.

Warming-down

On completion of the three sets, light jogging followed by a thorough stretching should be undertaken by all as part of the warming-down routine. It is advisable for the coach to insist on the good habit of donning extra clothing as an integral part of every warming-down session. This will ensure that the heat loss is gradual and controlled. All boxers should be taught the essential role that the warm-down routine plays following the cessation of any form of conditioning schedule. It is important to taper off gradually and not stop abruptly. Maintaining an increased flow of blood helps remove waste products and replenish energy supplies.

Location

Interval running can be carried out almost in any open space regardless of surface. It should be free from debris and long enough for the intended interval distance. A running track is ideal from the standpoint of ease of measurement and control. Resistance running on sands or up hills is especially effective for early season work (photograph 65). Most parks have open grassland which the imaginative coach can use, ensuring that variety of schedule and surroundings are kept as a priority. Never should any form of training become boring or monotonous.

Photograph 65. ABA England squad using interval running on a slope.

More careful thought is needed with selection of running surfaces as the boxer draws near to a contest. Continuous pounding on the roads will cause shin soreness. Also specificity of training requires training surfaces to closely resemble the texture and resilience of the ring floor. Perhaps the nearest one can get to fulfilling these criteria is running on a grass surface. In contrast road would be too jarring and sand too yielding.

Speed Endurance

Speed endurance work puts the emphasis on 'all-out' effort with minimum recovery. The distance can vary from 50–150 metres. Repetitions because of the intense effort involved will be few. Great concentration must accompany a high level of motivation to produce the desired results. Control of the recovery period is essential to ensure that the training session is maintained at an anaerobic level with the training benefit consequently taking place during the running and not during the recovery stage as with interval work. This control of recovery gives the heart insufficient time to fill between repetitions, forcing the heart wall to contract more frequently and strongly. Where possible, the repetitions should be arranged in sets with a relatively long recovery between each set, whilst maintaining a short recovery between each repetition. The maintenance of a very high pulse rate (180–190 beats per minute) whilst training is indicative of speed endurance work.

Aim	12 reps. × 80 metres
Sets	3 sets of 4 reps. × 80 metres

Organisation and procedure

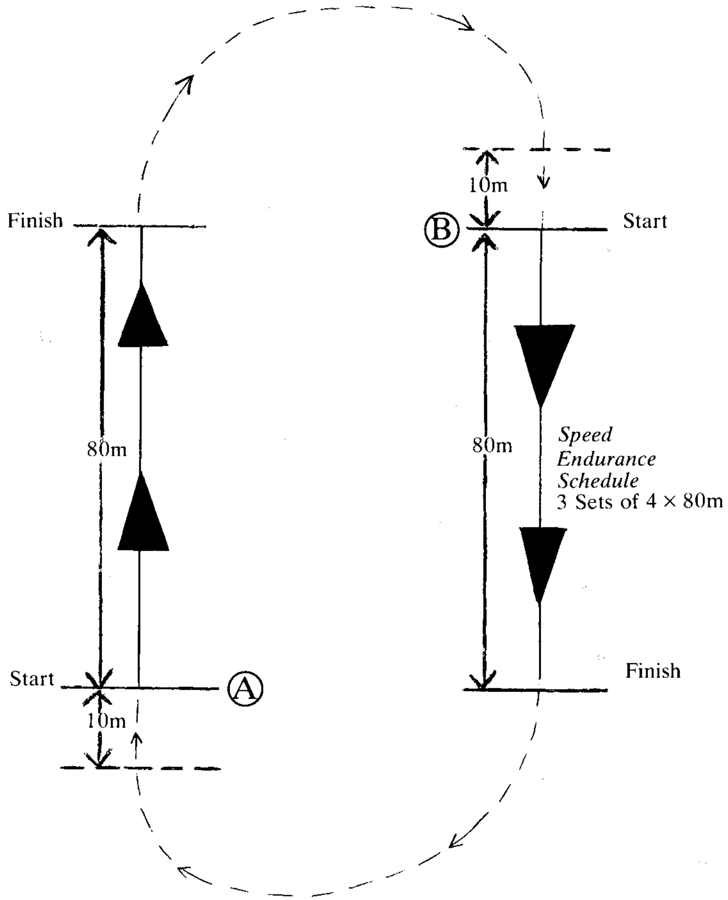
(i) The same principles apply relating to footwear, choice of clothing, warm-up and the equipment the coach needs.
(ii) Rather than working in groups, a pairing of boxers is more appropriate in allowing the individual more intrinsic motivation in all-out speed.
(iii) A rolling start is to be advocated as the explosive speed involved increases the risk of injury from standing starts.
(iv) The individual must be motivated to see that every centimetre of the distance set is vital.

(v) Although diagram 14 shows speed endurance runs in both directions no corners should be cut.

(vi) The minimal time to turn for the following repetition should be aimed at.

(vii) Ideally the coach should position himself at the first starting line 'A' with an assistant at the other starting line 'B'.

Diagram 14. Speed endurance running.



The coach must concern himself more with the time taken to complete the full set of 4 × 80 metres than the split times for each repetition. This makes any signalling unnecessary. This feedback to the boxers during the rest period between sets is more concerned with (*a*) the quality of running; any advice on style, stride length, relaxation, as appropriate and (*b*) the effort put in as indicated by the selected pulse rates. By starting the pairs at intervals of 15 or 30 seconds, with the fastest starting last, the coach can time all sets. He then deducts the 'handicap' from the time taken crossing line at 'A' for the first time and passing line 'B' for the last time. The rest between sets should be determined by both the subjective condition of the boxer 'feeling ready' and the pulse showing a reading between 130–140 b.p.m. Five to seven minutes' rest should be allowed between the first two sets and seven to ten minutes between subsequent sets. This will shorten or lengthen according to the distance and repetitions of each speed endurance session. Any reduction in the gap between sets detracts from the high quality of the speed endurance work which is vital.

Speed Work

There should be a gradual transition from steady state to interval to speed endurance work with a similar transition from speed endurance to speed work. As the name implies, speed work is concerned with pure speed, getting the body to think faster and run faster. Speed is part of interval and speed endurance work but alongside other physiological considerations, specific speed work comes as the final part of a boxer's running programme. The nearer to the contest the shorter the distance – the greater the speed. It forms a vital part of the final sharpening programme which brings a boxer to peak form. The distance can be from 40–80 metres with repetitions in the order of 4–6 per set, two to four sets per session. Adequate recovery should be afforded between each repetition and FULL recovery between sets. A minimum of three runs per week, preferably on alternate days to gym sessions, is necessary.

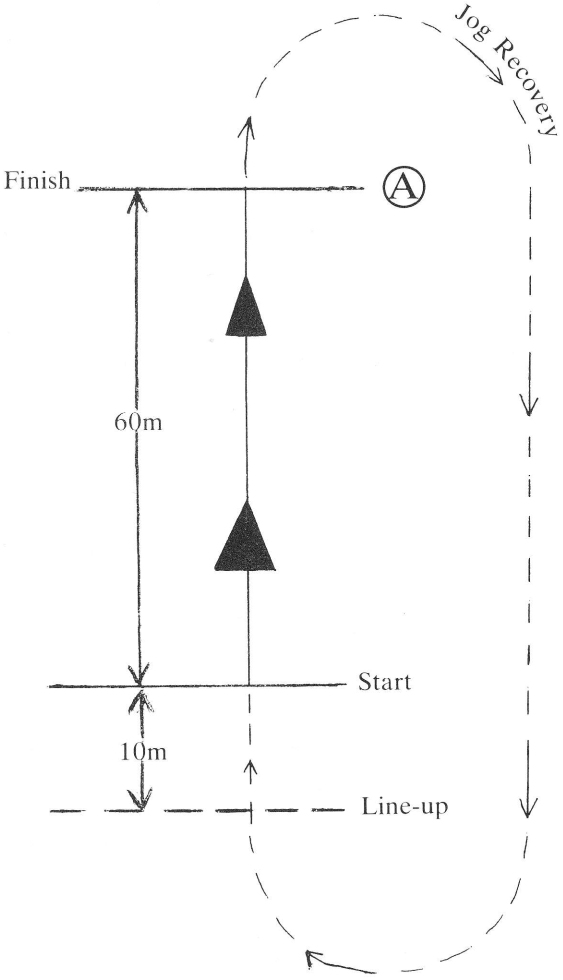
Photograph 66. Speed work on track.

Organisation and procedure

(i) The planning and organisation as outlined for interval and speed endurance runs remains valid.
(ii) Warming-up thoroughly is especially important in view of the quality of the explosive speed work involved.
(iii) The coach should stand at point 'A' and feedback coaching comments to the boxers.
(iv) Rests between sets should ensure full recovery. Use of a slope to increase limb speed is desirable.
(v) Short, explosive bursts of speed with minimum drainage on energy processes is the key.

It must be emphasised that all forms of running, apart from the steady state approach, should be only applied to schoolboys with great discretion. Apart from the physiological effects mentioned earlier, the levels of motivation and concentration make interval and speed endurance work unsuitable in educational and psychological terms. The whole concept of boxing for schoolboys should be considered from the skill and enjoyment aspects. Fitness programmes can be based on competitive games. Relay races of various distances and frequency coupled with an on-going programme of steady state runs, is as intense a running programme as necessary. Though with all boxers the early adoption of the formal good habits, regarding clothing, warming-up and stretching, etc. are to be strongly encouraged regardless of age.

Diagram 15. Speed running.



Speed-work Schedule
2 Sets of 4 × 60m

Examples of Intermittent Run Schedules

All to be preceded by a 10–15 minutes stretching/warm-up routine

All to be followed by a 10–15 minutes flexibility/warm-down routine

Steady state runs

1. 4/5 miles at easy pace.
2. 3/4 miles cross country or farther.
3. 3 mile **sustained** run. Can be used to test boxer's fitness level and to re-test for improvement throughout the season.
4. 3 × 600 metres with 400 jog recovery between.
5. 4 × 300 metres with 400 jog recovery between.

Interval runs

1. Up slopes or hills – 2 sets of 4 × 150 metres + 15 minutes jog at the end.
2. 6 × 200 metres with 200 metres jog recovery (block system).
3. 3 sets of 4 × 150 metres (set system).
4. 1 set of 4 × 200 metres, 1 set 3 × 175 metres, 1 set 2 × 100 metres (pyramid system).
5. 1 set 3 × 250 metres, 1 set 3 × 200 metres, 1 set 2 × 150 metres.

Speed endurance runs

1. 2 sets of 3 minute '15–15' runs, i.e. 15 seconds jog, 15 seconds at seven-eighths speed – repeated for 3 minutes.
2. 9 minutes continuous '15–15' runs.
3. 1 set 4 × 120 metres, 1 set 3 × 100 metres, 1 set 2 × 80 metres.
4. 3 sets of 6 × 60 metres.
5. Star shuttles (diagram 16) indoor work.
   3 sets of 60 seconds, 40 seconds, 20 seconds.
6. Hopping – 200 hops in sets of 25 on alternate legs.

Speed runs

1. 3 sets of 3 × 80 metres.
2. 1 set 4 × 80 metres, 1 set 4 × 60 metres, 1 set 4 × 40 metres.
3. 3 sets 4 × 40 metres.
4. 3 sets 4 × 80 metres.
5. 2 sets 6 × 60 metres.

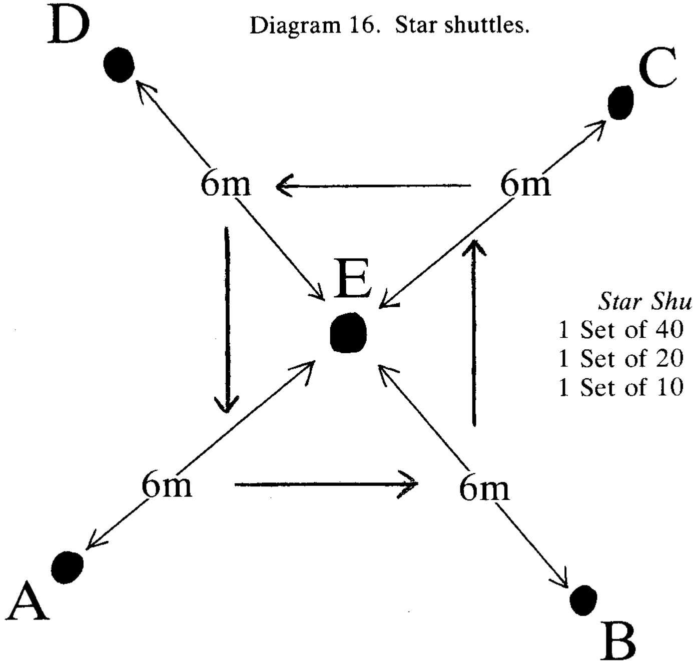


Diagram 16. Star shuttles.

Star Shuttles
1 Set of 40 seconds
1 Set of 20 seconds
1 Set of 10 seconds

Intermittent Work in the Gymnasium

The coach is to interpret the term 'gymnasium' referred to in this section as applying to the traditional boxing training methods practised in all boxing gyms. It involves the use of punch bags, punch balls, wall pads, skipping ropes, floor-ceiling balls, speed balls, stand balls, maize balls, shadow boxing and the use of coaching pads. Circuit training, weight training and other forms of conditioning training – though perhaps taking place in the boxing gym are *not* included. Sparring is also not to be considered as part of interval work. This is not to say that sparring is not part of the boxers' gym work – it is *the* most important aspect of his gym routine. All aspects of training are important, but none as important as sparring. However intermittent training is based on a high work rate, whilst sparring should always be approached as 'physical chess'. Openings have to be made, skills practised – but never should sparring be regarded as a part of the 'high work rate' conditioning programme. Though the rounds may be shortened, partners constantly switched, sparring must always be considered for its educational value. One would also add that an intermittent approach would increase the risk of injury substantially.

The principles of intermittent work in running, apply equally to the boxing gymnasium. Instead of continuously training over the same length of round in which the boxer will be competing, the length can be adjusted to induce the physiological benefits referred to earlier. Steady state work improves the boxer's aerobic capacity. Applied to the gymnasium, it is aimed at developing the endurance systems in the pattern of movements specific to the sport of boxing. The introduction of intermittent work trains the energy processes specific to the need of a sport which involves nine minutes of explosive bursts of activity with a minimum recovery between bursts. Steady state work will give the boxer the vital foundation, intermittent training will develop his ability to produce a high work rate for the duration of the contest. Both approaches are needed.

The five variables on which intermittent work is based can be translated into gymnasium terms as follows:

Running		*Gymnasium*
Distance to be covered	=	Length of the round
Repetitions	=	Number of rounds
Recovery between reps.	=	Recovery between rounds
Speed of run	=	Work rate
Frequency of runs	=	Frequency of gym sessions

Gym work cannot at first thought offer the same control of speed of action and work rate as running a distance in a target time. Simply reducing the length of the rounds and expecting the boxers to adjust accordingly is not good enough. Nor can there be any justification in sacrificing skill for 'all-out effort'. The very specificity of this type of training demands the use of skills, albeit in a pressured situation. As soon as the level of skill disintegrates, the coach must acknowledge that the point of overload has been passed and the session should taper to an end. To continue to perform beyond this point may well cause interference with the grooved pattern of movement on which the skill is based. Skill is absolute in intermittent work.

The question then remains as to how the work-rate can be varied according to the length of the round. Having raised the tempo, a check is necessary to ensure that the desired level is being maintained. There can be no substitute for the coach experimenting with this training approach, thought and planning to be given to the following:

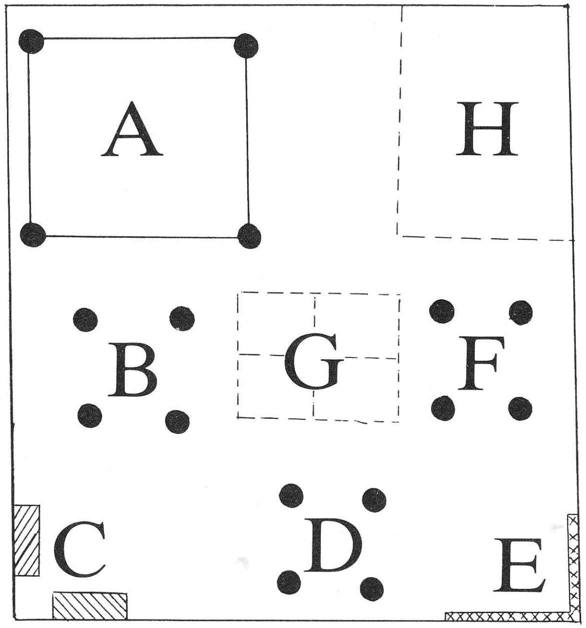
Motivation

It is crucial to 'sell' to the boxers the value of this type of work. The philosophy of 'getting out what you put in' particularly applies. Without this drive from within and a high level of concentration, the true values of intermittent work will not be realised.

Planning

Short rounds with short recoveries need the right equipment to be available at the right time. Only with thorough organisation and planning will the method be successful. All will be lost if a boxer, after finishing one set of rounds in shadow boxing, moves to the punch bag to discover that all bags are in use! Personal items of training equipment are the responsibility of the boxers, pieces of gymnasium equipment are the concern of the coach. Intermittent sessions must flow smoothly. No time should be lost in the change-over between activities. A blackboard or chart clearly showing the order of activities is invaluable (diagram 17).

Diagram 17. Organisation of intermittent work in the gymnasium.



A—Coaching Pads
C—Wall Pads
E—Shadow Box (mirrors)
G—Shadow Box Weights
(¼, ½, ¾, 1 kilo)

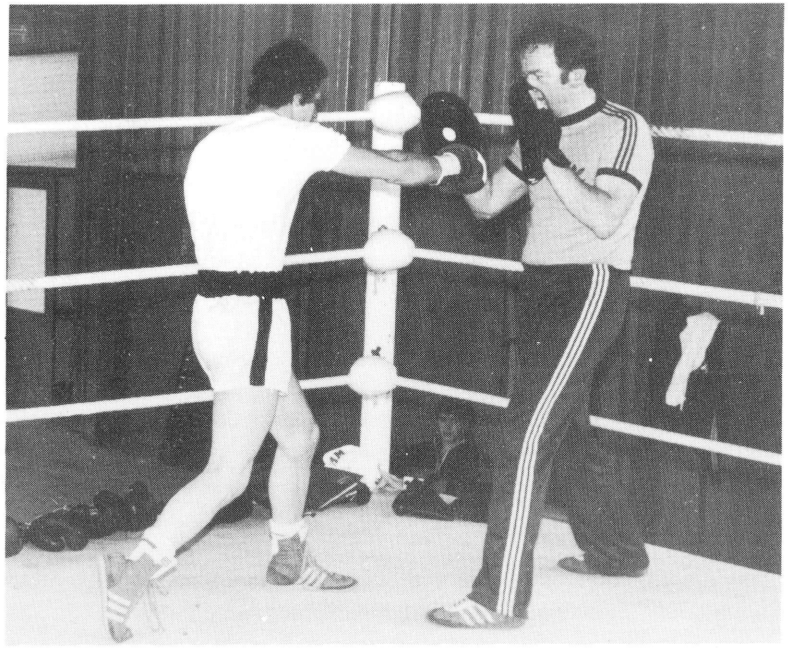
B—Medium Weight Punch Bags
D—Maize Balls
F—Light Weight Punch Bags
H—Skipping

SCHEDULE

Eight sets of four reps at 45 seconds rounds with 30 seconds recovery (rest between sets 1½ minutes during which the groups change activities in anticlockwise rotation). Number of boxers per group one, two, three, or four—depending on equipment.

Equipment

A variety of pieces of equipment which stimulate interest and challenge co-ordination is essential. Improvisation coupled with imagination can create wall pads, punch bags on pulleys. The weight and size of punch bags, maize balls, should reflect the work-rate and degree of speed being emphasised. Stand balls will have a limited use owing to their predetermined speed of recoil. Coaching pads are one of the most effective methods of maintaining high quality intermittent work (photograph 67).



Photograph 67. Intermittent work using coaching pads.

Combination punching

Combination punching is the key to work-rate. Throwing 2/3/4/5/6/7 punch combinations ensures the maintenance of a high work-rate. It follows that in all intermittent work punches must be thrown in clusters. Odd numbered combinations begun with the leading hand are to be preferred, as the last punch of the combination should close-up the target area. The equipment used should allow the set number of punches to be thrown, the higher the number of punches per combination the heavier the punch bag required. Whereas two and three punch combinations are more suited to the lighter bag, in both **speed** and **accuracy** are vital.

Theming

Theming links the skill factor to that of combination punching in intermittent work. Instead of combinations being thrown as the individual prefers, the coach dictates (i) the number of punches per combination, and (ii) the theme which limits the boxer's choice of punches in the combination. A theme is set to which all the skills used must comply for the number of rounds set. The coach will learn from experience the endless themes and variations possible which lend a cognitive value to intermittent work in the gymnasium.

The themes set will vary according to the skill level, experience and ability of the individual. They can be changed during the intermittent work, or ideally linked to the sparring and technique work which could well be of the steady state variety. The coach could then throw out ideas and discuss different combinations that could have been used in answer to the theme, giving particular encouragement to individual interpretation and flair. Indeed weaknesses will appear in individual boxer's technical make-up. One might fail to apply the conditions of the theme set because of technical flaws which hitherto had passed unnoticed, or an interpretation might be too stereotyped and lacking variety. Separate techniques sessions should highlight such failings and coaching can be given in the areas which showed a need for improvement in the previous intermittent session.

Work-rate/recovery

The pulse rate count indicates the effort being put in by an individual boxer. This should follow a similar pattern to different types of intermittent work in running. As with running it can be dangerous to interpret levels of fitness from one boxer to the other through similar pulse counts. Generally, the fitter the boxer the lower his resting pulse and the quicker will his pulse fall to the 130–140 range during recovery. The coach should appreciate too the probable inaccuracy in the pulse readings, a discrepancy of two counts in 10 seconds = an error of 12 beats per minute. Nevertheless, the pulse count shows effort and recovery. The coach should also bear in mind the deterring effect the possibility of a 'spot check' gives to the more extrinsically motivated boxer!

Examples of Suitable Themes

Combinations of 2, 3, 4, 5, 6, 7 may be set according to their suitability to the theme set.

1. All punches to be long range attack to the head.
2. Switch attack from body to head, including a left hook.
3. Begin the combination with a double jab and switch attack.
4. Straight punching to the body, switching from medium – to short – to long range.
5. End the combination with a left hook to the head.
6. Finish with a left hook to the body.
7. All combinations to be thrown whilst moving to the right.
8. Include a long range left uppercut in the combination.
9. Switch direction every other combination.
10. Begin each attack with a feint with the rear hand.

Work Classification in the Gymnasium

Diagram 18 outlines the approximate divisions of the three classifications of intermittent work. Each should be linked to the total training programme and not considered in isolation. As with different types of runs, it is not possible to categorise precisely all gym sessions. Each will be emphasised at various stages of the boxer's build-up over perhaps a four to six week build-up. Experience shows that this is the length of time required to sharpen a boxer using an intermittent approach sprinkled with steady state sessions. The inclusion of the latter is necessary from three aspects (i) it will serve as a welcome relief from the high levels of concentration needed with intermittent work, (ii) it ensures the retention of the levels of fitness built-up by steady state methods and (iii) it allows the boxer to train over the contest length thereby developing pace judgement. The nearer to the contest the more important this is.

There is one major difference in the application of intermittent training principles for running and gym work. Reducing the distance with a proportionate increase in the speed is a

Work Type	Length of Rounds	Number of Rounds and Sets	Recovery between Rounds	Recovery between Sets	Frequency (sessions per week)
Steady State	2 minutes → 5 minutes (increasing in units of 30 seconds)	8 → 14	1 minute → 45 seconds (decreasing in units of 15 seconds)		3
Interval	45 seconds → 75 seconds (increasing in units of 15 seconds)	4 Sets of 3 Rounds → 5 Sets of 5 Rounds	30 seconds → 15 seconds (decreasing in units of 15 seconds)	2 minutes → 1 minute (decreasing in units of 30 seconds)	3
Speed Endurance	20 seconds → 30 seconds (increasing in units of 5 seconds)	4 Sets of 3 Rounds → 5 Sets of 6 Rounds	15 seconds → 5 seconds (decreasing in units of 5 seconds)	3 minutes → 2 minutes (decreasing in units of 30 seconds)	2 (alternate with a steady state session)
Speed	10 seconds → 20 seconds (increasing in units of 5 seconds)	4 Sets of 4 Rounds → 5 Sets of 6 Rounds	15 seconds → 10 seconds (decreasing in units of 5 seconds)	4 minutes → 3 minutes (decreasing in units of 30 seconds)	2 (alternate with a steady state session)

Diagram 18. Classification of work in the gymnasium.

principle of running, gym work cannot involve the same regulation of speed. Though one can increase the number of punches per combination, and reduce the rest between combinations, there still remains the need to lift the work-rate from a 'three punch combination 45 seconds round' of interval work to a 'five punch combination 20 seconds round' of speed work. Though the boxer will gradually improve his tempo-setting ability there is insufficient room for manoeuvring. Therefore I advise that each area of intermittent work is approached separately. The length of rounds should be increased with the same work-rate being sustained over a longer period. Taking interval work as the example length of rounds will adopt the following pattern:

Progressive interval training in the gym

1. 45 seconds rounds with 30 seconds recovery
2. 45 seconds rounds with 15 seconds recovery
3. 60 seconds rounds with 30 seconds recovery
4. 60 seconds rounds with 15 seconds recovery
5. 75 seconds rounds with 30 seconds recovery
6. 75 seconds rounds with 15 seconds recovery

Music has been mentioned earlier in this book as an aid to circuit training. It is invaluable for use with intermittent work. Cassette tapes compiled with tunes of varying beats can help dictate work-rate. (Note, without vocalists for obvious 'sing along with' reasons!) Each tune can be recorded to the length of the appropriate round, with recovery intervals interspersed accordingly – this will greatly assist the coach in his time-keeping. Not only are the training sessions then much more enjoyable and appealing but the physical output from the boxers will rise markedly. Speed and relaxation can also be improved with a rhythmic beat influencing muscle contraction.

8

WEIGHT TRAINING

Though the importance of strength, power and muscle endurance in amateur boxing has long been appreciated, there is possibly more suspicion and ignorance about training with weights than any other form of conditioning for amateur boxing. Beliefs that it slows the boxer down, puts on weight, makes him 'muscle bound' still linger. One wonders how these beliefs still linger when television continually exposes feminine delights from many sports who use weights as an essential part of their preparatory programme. Perhaps confusion and suspicion arise with weight lifters and body builders being synonymous in some coaches' minds with training with weights. Much depends upon how the weight training programme is controlled – the choice of exercise, poundage lifted, number of sets and repetitions, and frequency, are all variables within the compass of the coach. Not only can there be substantial gains in strength and power and improvements in muscle endurance but speed and flexibility can receive important spin-off benefits.

Weight training involves the muscles working isotonically, that is shortening and lengthening of the fibres in contraction involving movement. It involves the use of progressive resistance exercises, in improving either general or specific fitness. By its very nature it presents a challenge to a boxer, who can see the progress made in the poundage lifted or number of repetitions increased. This objective ingredient serves to motivate the boxer to train harder and to believe that he is stronger.

The principle of overload as applicable to all training methods has special significance to training with weights in

that the control of the progressive resistance can be so carefully monitored. It can accommodate all body types and schedules can cater for individual's needs. The coach can control the overload by:

(i) increasing the number of repetitions,
(ii) raising the poundage lifted,
(iii) increasing the numbers of sets,
(iv) reducing the rest between sets.

When considering increasing the intensity of a weight training schedule, the coach should guard against progressing too quickly. Only when the coach is satisfied that the current load is now within the boxer's strength level should a further overload be made.

As part of a balanced training schedule weight training should be evaluated alongside other forms of accepted strength training – isometric and isokinetic methods.

Isometric

Isometric work involves static contractions with no movement, the resistance to be moved exceeds the capabilities of the muscles involved. Hettinger and Museller were the first researchers in this field. In 1953 they introduced a training theory that a daily three maximum contractions held for six seconds produced significant gains in strength. This was later (1960) appended to 'maximum contraction' held for three seconds' duration and repeated five times daily. However although isometric work is very much in evidence in many groundwork routines, there are limitations to this approach of which the coach should be aware. The research done by Hettinger and Museller was largely with sedentary workers whose strength level would bear scant comparison to the fit boxer! In addition strength gains through isometric work have been found to be specific to within a small range of the joint movement involved. A further drawback is in the absence of motivational feedback from training performances – improvement cannot be objectively measured. This is not to say that isometric work has no place in training for amateur boxing. Rather it should be used with discretion by the coach largely in three areas of the conditioning programme.

(i) Groundwork – the abdominal wall, dorsal area and neck muscles will benefit from regular inclusion as part of a sequence of groundwork exercises which should also include flexibility exercises.

(ii) Compensatory work – it is often difficult to devise exercises for some of the more remote muscles. As a safeguard against possible attack a boxer needs to hold major muscle groups in permanent readiness. The constant contraction needed is comparable to a degree of isometric contraction of the muscle groups (e.g. shoulder retraction). The constant stretching of these muscles in the basic boxing skill of punching calls for compensatory strengthening work; isometric contraction can play an important role. Again, a groundwork routine should include such exercises.

(iii) As a break from training, especially outdoors, a routine of isometric exercises involving the pushing and pulling of immovable objects makes welcome relief from the more formal indoor strength work whilst making a worthwhile contribution to the strength programme.

Isokinetic

In one major respect, isokinetic strength training has an advantage over isotonic work (i.e. weight training). The efficiency of the muscles taking a joint through a prescribed exercise will vary according to the range of movement which it passes. However in isotonic contraction the resistance remains the same. For example, a bench press sees the greatest effort being exerted in overcoming the inertia of the bar when the levers involved are at their greatest mechanical disadvantage. The bar is then moved through its most effective middle range when the muscles are capable of exerting greater force than is required. Hence the boxer is limited by the maximal weight capable of being lifted at the weakest angle of skeletal leverage. With isokinetic strength training the resistance is controlled by a machine which allows for this alteration in resistance. Also there is an inbuilt advantage in that some isokinetic machines allow for high and low speed training. This matching the speed of training to speed performance may be important in the light of recent work concerning specificity of training. Research indicates that isokinetic resistance training will play a major role in future strength training programmes, though at present the cost of quality machines and the variety of exercises possible limits their use.

Safety code when handling weights

Safety measures are vital in every area of weight training. A notice listing safety rules should be displayed in the area of the gym or separate room where weight training takes place and rigid discipline must be accepted. The walls should be free of visual distractions apart from visual aids, wall charts, personal progress records which can stimulate interest if they are well presented and kept up to date. Floors should offer a suitable footing and a warm atmosphere will aid the prevention of injuries and encourage motivation. The code of safety should include the following:

1. Never lift alone, work in pairs or threes.
2. Ensure that the weights (collars) are securely fastened.
3. Practise new exercises with light weights.
4. Always lift with a **good technique**.
5. Use the **chest** and **thigh rest** positions with overhead work.
6. Accelerate smoothly – do not attack jerkily.
7. Record each training session.
8. Warm-up and warm-down thoroughly.

Warming-down

The last point merits special attention with weight training. Some of the values of warming-up and warming-down have been dealt with earlier. The warm-up is essentially concerned with

(i) increasing heart rate,
(ii) stretching the major muscle groups and joints,
(iii) adjusting psychologically to the training load.

Warming-down involves

(i) the gradual lowering of the heart rate,
(ii) a sound stretching routine to ensure that all joints are worked through their maximum range.

The coach should remember that the heart rate has to be kept sufficiently high to remove waste products, especially lactic acid. This is helped by increasing the venous return to the heart due to the massaging action of muscle contraction on the veins. Stiffness, or muscle soreness following training are primarily due to the boxer cutting corners in his warm-down routine. Warm-downs following weight training should include fast repetitions of suitable exercises to flush the capillary bed and to ensure that the **speed** factor is emphasised in the pattern of movement performed.

Deciding on the Weights Programme

General Considerations

The coach should approach weight training as a part of the balanced conditioning programme. Never should it or any form of conditioning be considered in isolation. Its effectiveness depends upon the contribution which other forms of training are making to the boxer's fitness programme. The shape that the programme takes should complement the type of circuit being undertaken. Thus the closed season weight schedule would depend upon the number of power circuits allocated. Consideration should also be given to age, no boxer under the age of 14 should follow a formal weight training programme of any intensity. A boxer's occupation will likewise be an influence. A manual worker would presumably be stronger in certain areas than a clerk. Not that a strong manual worker is necessarily a strong boxer! The strength developed as a necessary adjustment to the demands of the boxer's job is specific to his work. In boxing terms we may refer to this as gross body animal strength – which is but the foundation for specific work.

The individual's level of aspiration must also be considered. If he sees boxing purely as an enjoyable hobby his training time will be apportioned accordingly amongst other pursuits. It would then be rather foolish of the coach to insist on a lengthy, intensive weight training schedule which would occupy the major part of his boxing time. This is not to say that he should not do any form of weight training, on the contrary, *all* boxers should undertake both general and specific weight schedules. What is needed is for the total requirements of the individual to be taken into consideration by the coach before compiling, with an explanation to the boxer, a specific schedule.

Phasing – the weights programme

At different times of the year a coach will have different priorities. Although he will have a general plan of campaign, he should be flexible enough to cater for both individual rates of progress and starting levels. The close season, or non-competitive phase, should be 'closed' in a boxing sense only. After a short break following the end of the season, the weight training programme should begin with either:

(i) introducing boxers new to weight training to techniques and thereby establishing a general platform of fitness, or
(ii) undertaking a specific strength and power schedule.

As part of the hard core fitness training exercises involving explosive use of the leg muscles and upper body groups will have significant cardio-respiratory effect. After the boxer is used to handling weights, he should be tested in each of the exercises for the maximum poundage he can manage in one repetition. The training load to be set in all types of weight training can be assessed by testing individual boxers. For general fitness the weights should allow 15–20 repetitions. This means that the effort should be felt in the last few repetitions of each exercises selected: three to four sets per exercise is advised, i.e. each set of 15–20 repetitions to be performed three to four times, with a rest period between of 45–60 seconds. Fitness levels should determine both the number of sets and precise recovery between them. The remaining variables which make up each training session are number of exercises and frequency of sessions – eight to ten exercises performed three or four times weekly should be adequate.

The beginning of the competitive calendar should see a gradual swing away from general exercises to the specific needs of amateur boxing. Exercises should be included which build up the strength, power and muscle endurance in the area and patterns of movement needed in boxing. It should be remembered that the longer the build-up, the slower the drop-off. Training programmes should therefore be considered on four year rather than yearly cycles. Today's overload is next session's norm. As with all forms of training, different boxers will react differently to the same form of training. Should the coach notice any sign of disinterest or lack of progress, he should direct his attention to the possibilities of changing the 'set' approach in his weight training programme to perhaps the 'combination' or 'pyramid' approach. Whichever method is used extreme caution is needed with the tapering period prior to a contest. Regardless of individual preference, it would be extremely difficult to make out a case for the inclusion of any form of weight training during the last week prior to a contest.

Mid-season should see the emphasis on speed throughout all aspects of training including weight training. Whereas close and early season have seen progressive resistance exercises designed to stimulate strength, power and muscle endurance, now new priorities geared to more specific speed work should be reflected in the weight training undertaken. Though weights could – and indeed *should* – constitute an integral feature of many circuits pure weight training is more concerned with emphasising muscle endurance –

(i) improving speed, and
(ii) maintaining levels of power and strength.

With the peak phase of the season, all training should be geared to high quality speed work, and be as specific as possible. However the benefit of the earlier part of the season's weights programme should be maintained – one weekly session of suitably loaded exercises should ensure that these levels are upheld.

Time of Year	Fitness Priority	Number of Exercises	Number of Reps	(% of maximum) Poundage	Number of Sets	Recovery (between sets)	Frequency (per week)
Close Season	A General Fitness or	8–10	15–20	60–70	3–4	45–60 seconds	3–4
	Strength B Power	6–8	3–5	80–85	4–5	60–90 seconds	3–4
Early Season	Muscle Endurance (maintain Strength and Power)	6–8	20–25	45–50	2–3	45–60 seconds	2–3
Mid Season	Speed (maintain Strength, Power, M.E.)	5–6	8–10	70–80	2–3	60–90 seconds	2
Peak Season	Skill (maintain Power, Speed, Strength, M.E.)	4–5	3–5	80–85	2–3	90–120 seconds	1

Diagram 19. Periodisation of the weight training programme.

Whilst the above chart indicates a systematic approach to planning a weight training programme, a rigid translation is not intended. It is just a guideline for the coach to work from in preparing schedules. More than one weight schedule may be in operation at any one time. An 'A' and 'B' schedule can ensure an on-going process in the contribution which each schedule makes to the areas of fitness. This also ensures that the transition from each is more gradual. With this in mind the following pattern may emerge, see diagram 20.

SELECTED EXERCISES

Close and Early Season

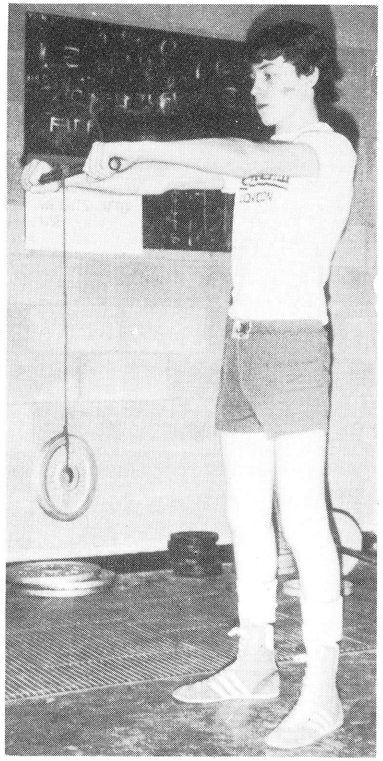
1. Winding the weight (photograph 68)

Technique: The weight is held at arm's length, wound and unwound steadily.

Time of Year	Frequency (sessions per week)	Weight Schedules	First Week	Second Week	Third Week
Close Season	3–4	A, B	A, A, B, A	A, B, A, A	B, A, A, A
Early Season	3–4	C, D	C, C, D	B, C, C	D, C, C
Mid Season	2	E, F	E, E	F, D	E, F
Peak Season	1	G	G	G	F

Diagram 20. Weight training schedules – suggested cycle.

Key. Schedule to emphasise:
A – Power exercises
B – Strength exercises
C – Muscle endurance exercises
D – Selected power/strength exercises
E – Speed exercises
F – Selected strength/muscle endurance exercises
G – Skill exercises

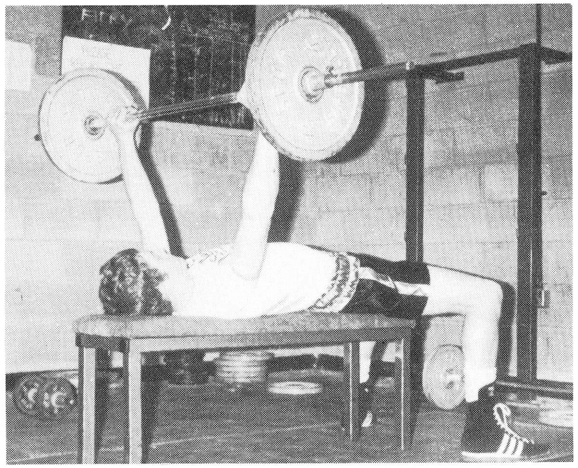


Purpose: Strengthens the flexors and extensors of the wrist-isometric concentration in deltoids.
Breathing: Normally.

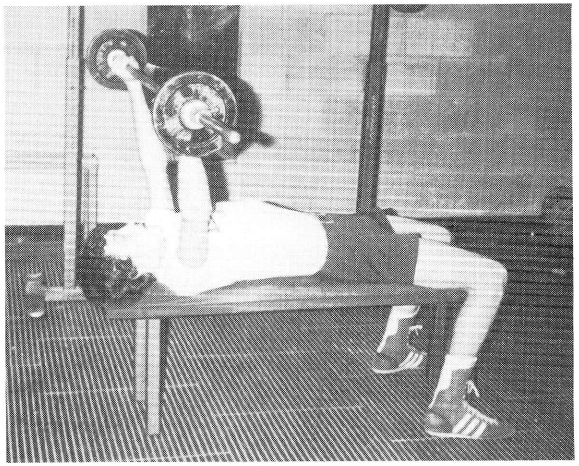
Photograph 68. Winding the weight.

2. *Bench presses* (photograph 69)

Technique: Lie on a bench, feet flat on the floor. Grip weight shoulder width apart. Keep the bar moving, do not allow it to rest on the chest.
Purpose: Pectoral and chest muscles.
Breathing: Out as the bar is pushed upwards, in on its descent.
(Development: With undergrasp vigorous contraction of triceps).



Photograph 69. Bench press.



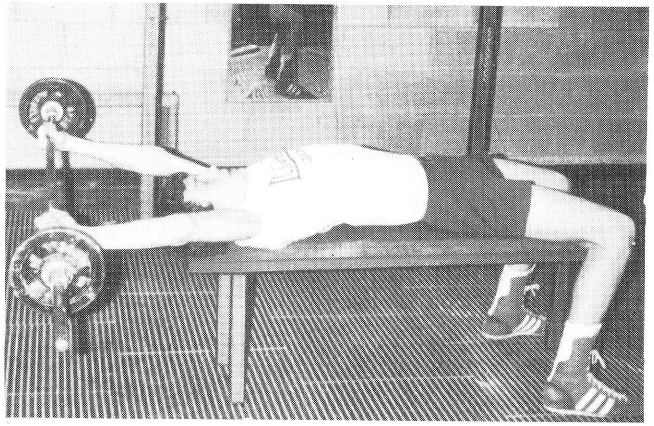
Photograph 70A. Straight arm pullover-starting position.

3. *Straight arm pullover* (photograph 70)

Technique: Grip at shoulder width arms lying on narrow bench. Keep arm straight and lower the bar towards the ground. Take the movement as far as possible and return to starting position.

Purpose: Strengthen the chest muscles, lower back, flexibility of shoulder joint.

Breathing: In as bar is lowered, out as returned.



Photograph 70B. Straight arm pullover.

4. *Single arm rowing* (photograph 71)

Technique: With one hand continually in contact with a low bench, the dumb-bell is pulled smoothly but quickly back, the upper body turning with the movement. Both arms should be used in separate sets.

Purpose: Develop the trunk rotational muscles, trapezius and back muscles.

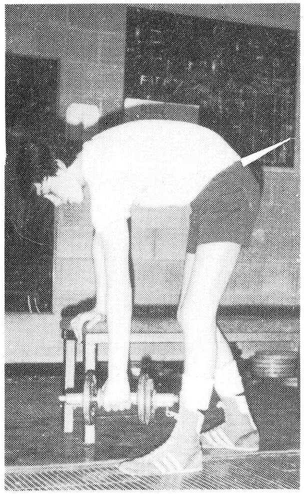
Breathing: In as dumb-bell is raised, out as lowered.

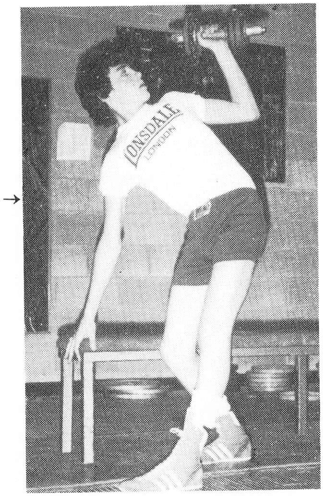
5. *Press behind neck* (photograph 72)

Technique: With a wide grip the bar is pushed to full stretch height and then lowered to rest behind the neck.

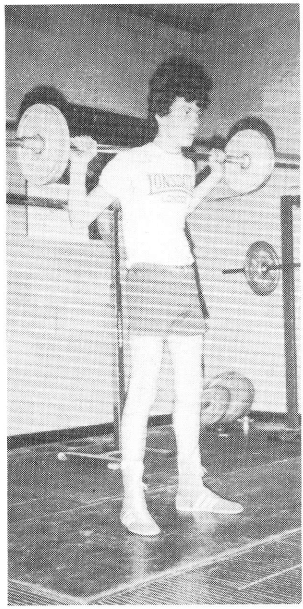
Purpose: Strengthen the upper back muscles and tricep effect.

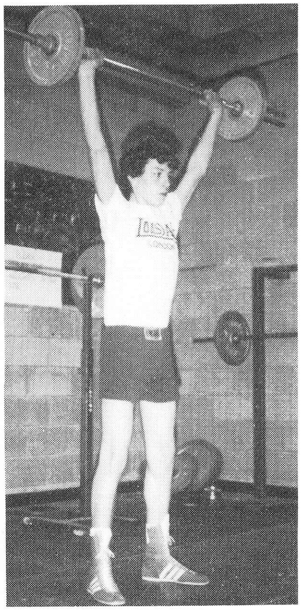
Breathing: In on the upward push, out on the return.





←Photograph 71.→ Cheating single arm rowing.





←Photograph 72.→ Press behind neck.

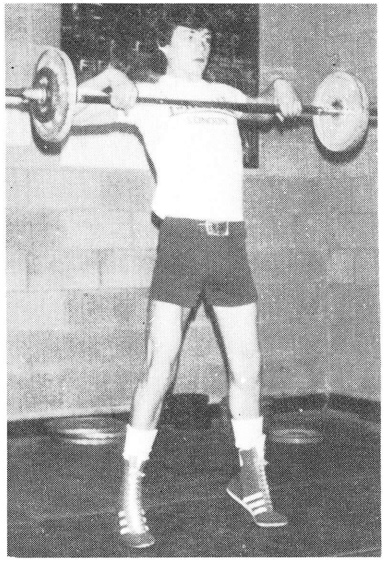
6. *High pull-up* (photograph 73)

Technique:	From a semi-crouched position with the bar resting at knee height, the bar is pulled close to the body with the hands remaining on top throughout. The legs assist the drive which finishes with the bar at floor level.
Purpose:	Power in the legs, upper body 'all-rounder'.
Breathing:	In on the upward pull, out on the descent.

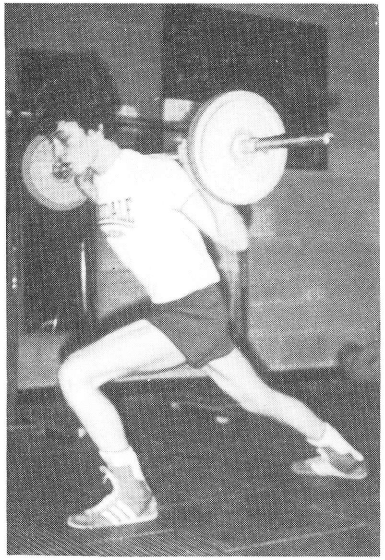
7. *Lunges* (photograph 74)

Technique:	From an erect position the body weight is transferred into a forward lunge by the knees being flexed, the trunk remains erect. Both legs assume the role of the leading leg.
Purpose:	Power in the legs.
Breathing:	Out on the step forward, in on the return (this gives the timing of explosive breathing as in punching).

Photograph 73. High pull-up.

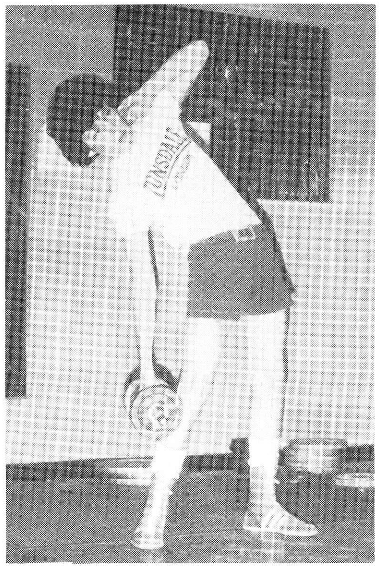


Photograph 74. Lunge.

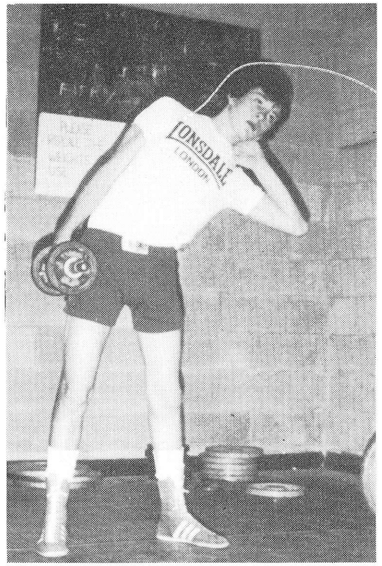


8. *Dumb-bell side bends* (photograph 75)

Technique:	A firm base anchors the lower body as the trunk bends sideways to full extension. The movement should be confined to the lateral plane and sets performed with both hands.
Purpose:	Strengthens lateral trunk muscles.
Breathing:	In as the weight is lifted, out as lowered.



Photograph 75A. Side bends.



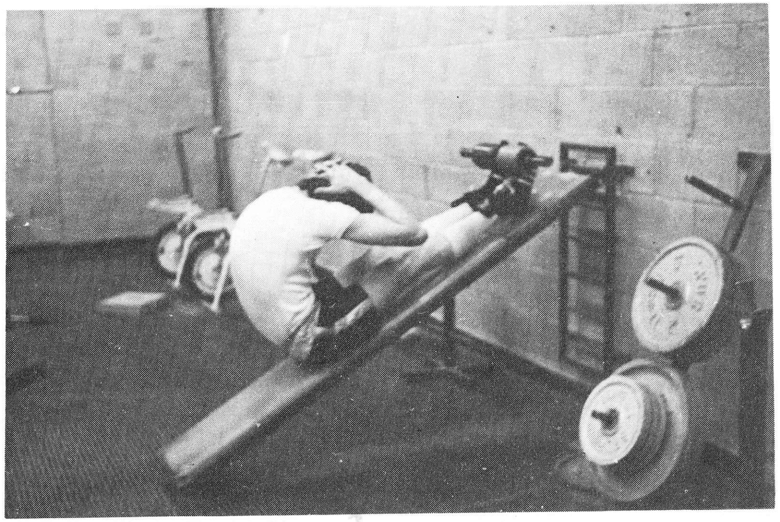
Photograph 75B. Side bends.

Mid and Peak Season

1. *Inclined sit-ups* (photograph 76)

Technique:	With feet secured on an inclined bench, knees slightly flexed and disc held behind the neck as the upper body is raised to the vertical position. A twist of the trunk aids rotation alternately both ways with successive sit-ups.
Purpose:	Stomach wall and trunk rotators.

Breathing:	Out as the trunk is twisted, in on lowering (simulating explosive breaths when punching).



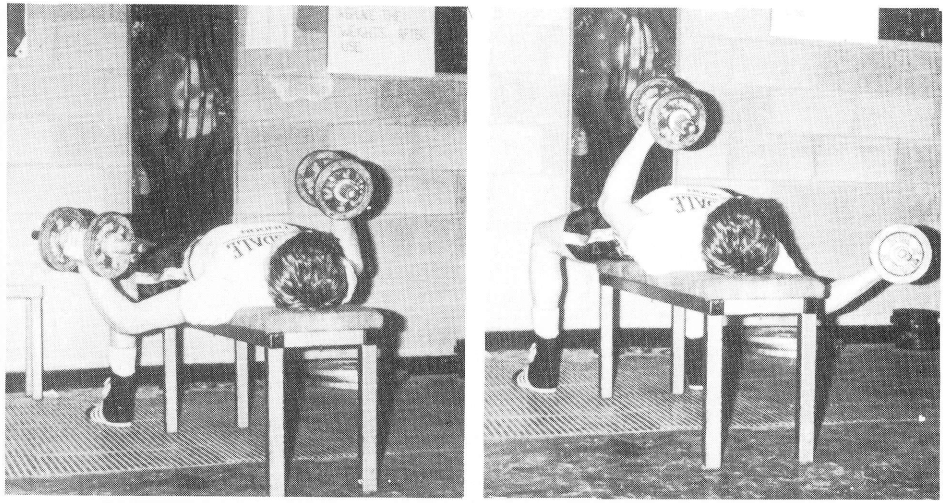
Photograph 76. Inclined sit-up.

2. *Bent arm lateral raise* (photograph 77)

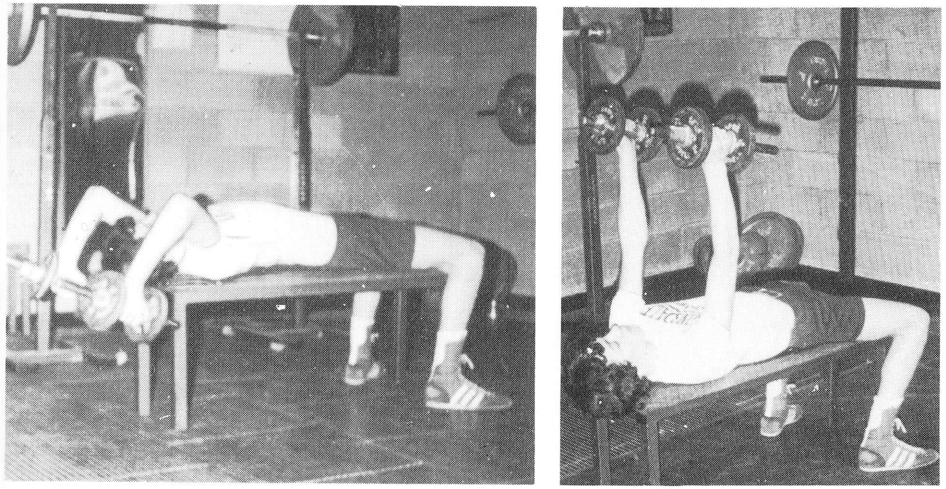
Technique:	Dumb-bells are held in a 'comfortable' flexed position, the arms are lowered sideways as close to the ground without touching and returned to the starting position.
Purpose:	Hooking muscles of arms and chest.
Breathing:	Out as arms are raised, in as lowered (as boxing).

3. *Tricep bench press* (photograph 78)

Technique:	Dumb-bells are held at stretch height over the face, elbows flexed to 90 degrees angle before being pushed back to starting position.
Purpose:	Specific triceps (major punching muscles) extension.
Breathing:	Out as dumb-bells are lowered, in as raised.



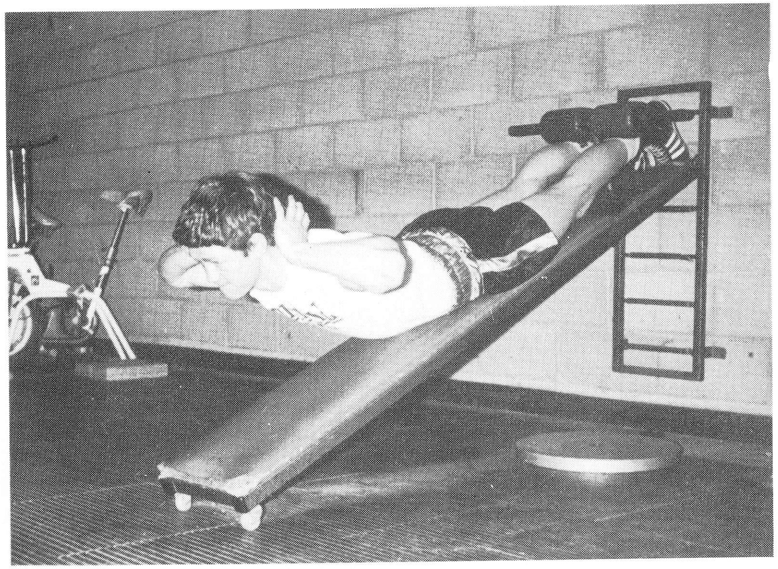
Photograph 77. Bent arm lateral raise.



Photograph 78. Dumbell tricep press.

4. *Inclined dorsal raise* (photograph 79)

Technique:	Lying face downwards on inclined bench with feet anchored and disc held behind



Photograph 79. Inclined dorsal raise.

neck. Upper body is raised as high as possible and then lowered. Alternate twists of the trunk enhance the effect.

Purpose: Dorsal area of lower back.
Breathing: In as the trunk is lifted, out on lowering.

5. *Neck rolls* (photograph 61)

Technique: In the wrestler's bridge position the disc is held *without moving* as the body rolls backwards and forwards to maximum extent.
Purpose: Strengthen the neck flexors and extensors (assist toleration of punishment).
Breathing: As required.

6. *Alternate dumb-bell press* (photograph 58)

Technique: Lying on the back on the bench at approximately 60 degrees with feet resting on the

floor. The dumb-bells are pressed at speed to maximum reach.
Purpose: Develops triceps, deltoids and other punching muscles.
Breathing: Explosive breathing as punching.

7. *Squat jumps* (photograph 60)

Technique: A dumb-bell is held in either hand as the legs drive vertically with each leg landing in turn in front in a split position. The upper body remains erect throughout the drive and all squats are shallow.
Purpose: Develops explosive leg power.
Breathing: Out on the drive upwards, in on the descent.

9

COMPETITION

The coach should see the contest as an extension of the training programme. His schedule covers the technical, physical and mental preparation his boxers need for their bout. Through the preparatory training period the coach will have assessed each individual's personality, his ability to cope with the stress of competition, and encourage the boxer to be aware of his physical and mental powers. The good coach will have fed into his boxer's preparation the degree of mental training the individual boxer needs. He will know that the vital qualities of concentration, confidence and relaxation cannot be monitored on the night by a manipulative process. Only a systematic mental training programme will develop such qualities. Psychological blocks can be removed by attitude changes; a boxer may genuinely freeze in competition through fear of failure. If he is afraid of a bad performance he may be too tense and not take the slightest chance, or the converse may happen, especially at major championships – fear of success. The boxer fails to produce a good performance because he is afraid of being exposed to all the publicity and social pressures that it will bring. Only with sensitive handling will the coach be able to help the boxer programme himself to lifting the barriers to success.

Natural ability is but one factor in the champion's make-up; his belief in that ability and resultant confidence is as important as the ability itself. Each opponent should be treated with respect but without a hint of disdain or fear. The technique programme and conditioning schedule have prepared him to be successful, and both he and his coach should believe implicitly in the method of preparation. Any doubts in the

coach's mind will be quickly transferred to the boxer. The more important the occasion the more it is likely that the factor of stress will take its toll. Confidence is closely linked to relaxation, on which hinges speed of movement and economy of effort. Just as the conditioning programme overloads the fitness factors, so should the mental training prepare for the level of stress to be encountered. Relaxation techniques must feature in all training programmes. The boxer is taught to control the degree of relaxation on a self-registering basis. All boxers will and should experience a degree of nervous tension prior to competition. This tension usually manifests itself in an increase in the activity of the sweat glands, a dryness of the mouth and a sensation of tightness in the stomach. Daily mental training can evoke the right degree of tension as the boxer learns to control his inner self. This produces a positive drive as opposed to a negative withdrawal.

Diet and Sleep

The harder the training programme the more important is the amount and quality of food and sleep. The quality of training will suffer if the mental concentration and physical condition are lacking. Naturally a boxer has a need to relax from boxing and socialise with friends of both sexes; the break away will serve as a vitally necessary rest. Rest becomes as important as the training programme especially over the last few days before competition. Each boxer should establish a pattern of sleep in terms of quality and quantity which suits his needs. Even during sleep the boxer burns off energy at the rate of approximately 0.93 calories per kg of body weight per hour. This figure will vary according to the nervous disposition of the boxer and will generally increase as the contest approaches. The more nervous the boxer the more energy is burnt up. Relaxation techniques and massage can produce a deeper more beneficial sleep.

A boxer's weight class is a crucial factor and a constant dilemma for many coaches. Diet is the secret of weight control. Loss of weight using plastic vests and/or shorts is loss of body liquid not body fat, and is therefore only a temporary measure. The only way to lose weight is through controlled eating. The amount a boxer eats will naturally depend upon his physique and size. Some are more inclined to put on weight than others. The coach has to decide on the competition weight for each individual, bearing in mind that weight reduction can weaken a boxer. It is better to box and be strong one and a half kg over the featherweight 57 kg limit than to make the 57 kg limit and be weak. The danger of excessive dehydration through drying out should be a major concern of the coach. Research has shown that a weight loss through excessive sweating or dehydration can produce a 20 per cent loss in efficiency in performance strength.

A boxer competing at club level requires approximately 4,500 calories per day. The coach should acquire a knowledge of the boxer's eating habits by observation and conversation. Though variations in requirements may be great in terms of a boxer's metabolism and personal preference, all require advice on eating habits in training and pre-competition. The method of food preparation is important. Boiling, as opposed to frying a piece of cod reduces its calorific value by more than half. A balanced diet should include:

Fuels: mostly carbohydrates, sugar and starches, found in bread, cakes, biscuits and potatoes, and as an energy source are necessary to the boxer's diet. However eating too many carbohydrates will result in a weight gain.

Tissue-building: protein, calcium and certain vitamins as in meat, eggs and fish.

Protective vitamins: (CA) which fade when food is cooked. Rosehip syrup, blackcurrant juice and oranges are good sources.

There are other vital ingredients necessary to the balanced diet which assist in the complicated energy process. Carbohydrates are broken down to the form of glycogen and stored in the liver and muscles. Calcium is a mineral which is essential for the assimilation of protein. Liver and cocoa powder contain iron which combines with vitamins C and B_{12} in the production of red blood cells which transport oxygen to the working muscles. Fresh fruit is rich in vitamin A which research shows aids working in artificial light. Though the value of iodine is appreciated little is known about the other trace elements. Dieticians conflict with experts in other fields over the use of diet supplements such as wheat germ, halibut oil and pollen extract. Many athletes however do take natural supplements with the approval of their coaches who realise their undoubted psychological value.

A coach may observe in training the signs indicating a diet inadequacy. Symptoms such as tiredness, listlessness, might well be caused by anaemia resulting from lack of iron. In such cases the coach should remember his own limitations and direct his boxer to his doctor for a thorough medical examination.

The fallacy of the steak as a pre-fight meal should now be widely accepted. However if the steak provides a psychological boost – eat it! If the boxer thinks that a certain type of food will aid his performance, it probably will. What must be controlled is the time which should elapse between the last main meal and the boxing time. Three to four hours should be considered a minimum. The more nervous a disposition the boxer has the longer he will need for his food to digest. The coach also should restrict the type of food eaten, its preparation and the amount consumed. Boxing on a full stomach or on a meal still in the process of being digested will detract from performance, as the blood needed by the working muscles will be required in the digestive process. A boxer will thus feel more like sleeping than fighting and exercise will produce discomfort frequently appearing as a 'stitch'. Food prepared in fat should be avoided. The length of time milk takes to digest should prohibit 'the pinta' being taken in the last few hours. It is far better to box on an empty stomach having had a fairly substantial snack three or four hours earlier. A suitable snack would consist of poached or scrambled eggs on toast, a few pieces of chocolate, biscuits laden with honey and a fruit juice containing two spoonfuls of glucodin powder. Honey is a prime source of easily assimilated sugar which will quickly raise the blood sugar level.

PREPARATION FOR A CONTEST

(a) The Coach

In the pre-contest situation the coach's role is to offer stability and uniformity to his boxer. The amount of support he gives will depend on the boxer's ability, his temperament and the size of the occasion. Pride in his own appearance and behaviour will be a strong influence on the boxer's state of mind. He must display confidence and thoroughness in all his preparations. Whilst seconding the rules permit the wearing of a track suit, white jacket and white/grey flannels, for footwear – a clean pair of plimsolls, boxing boots or training shoes. It is both unhygienic and slovenly not to change footwear. A coach should also not drink any alcohol before acting as a second. His first concern must always be the welfare of the boxer. He should possess a comprehensive knowledge of the ABA rules, and have passed on this knowledge regularly and systematically to his boxers in training. Any tendency to develop habits which might incur a referee's caution or judge's displeasure, should have been erased from the boxer's make-up. Special sparring situations can be used to this end for it is absolutely critical that a boxer knows and is given insight into (*a*) what the essential rules are, (*b*) the reasoning behind the rules and (*c*) which rules are of particular significance to the individual boxer.

The coach's routine should be well established and begin long before the tournament. All equipment should be checked carefully. His medical bag should contain the equipment he is allowed to use in the corner, general medication for the treatment of superficial injuries and precautionary first-aid in the light of any emergency.

Equipment for use in the corner

Adrenaline 1/1000 solution.
Beaker or spray bottle.
Cotton buds (with heads enlarged by addition of cotton wool).

Ice pack (or silicone gel bag).
Sponge in plastic bag.
Sterile gauze pads.
Turkish towel and spare hand towel.

General medical supplies (for competition and training)

Ananase, Varidase, Chymoral.
Bandages assorted.
Bonjela.
Cetavlon solution 1 per cent.
Collodion.
Ear drops.
Elastoplast assorted.
Elastoplast stretch fabric.
Embrocation, baby oil, talcum powder.
Eye drops.
Movelat gel and cream.
Nasal drops.
Nobecutane spray.
Pockets gauze squares.
Paracetamol.
Radian massage cream.
Savlon cream.
Scissors – 1 pair small, one pair general surgical.
Steri-strip.
Sterile gauze.
Surgical spirits.
Triangular sling bandage.
Tweezers.
Vaseline white.

His personal equipment should also include a pair of coaching pads and a stop-watch. The latter piece of equipment reflects the importance of having a systematic routine which involves a clear understanding with the assistant second of the respective roles each should follow. Whilst both are now allowed under ABA rules to act on the ring apron, only one can advise the boxer between rounds. The assistant has a crucial role to play in support. A working relationship will soon be established which should form the basis of approach at any boxing tournament:

1. Both should inspect the ring on arrival, examining the size, thickness of underfelt, width of the apron, implements in the corner, width between ropes; availability of clean water, buckets; proximity of ringside tables.
2. The assistant second should discover the siting of the gloving-up, weigh in, medical examination, toilet and showering facilities, and suitable warm-up space. His role is to establish a pattern of movement which the boxer and chief second can follow, leaving his partner to devote all his care and attention to their boxer.

(b) The Boxer

Care is needed by the boxer in selecting the clothing and equipment in which he boxes. This care should be extended to his preparation for each contest. He must be taught the importance of detail. Kit should fulfil ABA regulations, be clean and comfortable. Though the wearing of boxing boots is to be strongly recommended, many younger boxers find them too costly; plimsolls or training shoes are adequate. ABA rules now prohibit the use of resin in the corner. Boxing boot soles should be of the moulded rubber, non-slip type. Part of 'feeling good' is wearing the right clothes. Shorts and vests of the same colour should contrast the waist band to show the position of the belt. Bandages of regulation length should be clean and rolled ready for use. Every boxer is required by ABA rules to wear a cup protector and the use of a gum shield is advised. From the point of view of teeth protection and absorption of shock, a gum shield is to be considered an absolute must. Then it should be well-fitting and moulded to the individual's mouth, being kept in a container. Beards are forbidden by ABA rules and hair at the front of the face should not go below the level of eyes.

The aim of every boxer should be eventually to own a track suit and dressing gown. These items should be considered as essential aids to warming-up and should be used both before and after competition. Socks, a spare towel, beaker and sponge, should be taken to every tournament for use in the ring. The importance of personal hygiene should be stressed by the coach – and shown by example!

(c) The Final Stages

No two boxers are alike and under the pressure of the competitive situation any shortcomings in temperament will be magnified. The coach must treat each as an individual and act in a supporting role as required. Mannerisms in dressing such as which boot is put on first, reflect insecurity and should be accepted as part of the pre-fight ritual. Insignificant idiosyncrasies become major needs as the level of competition rises and the stress factor increases. The boxer should be allowed to repeat whatever he is used to as part of his familiar pattern to promote the right frame of mind. Changes can be modified in this ritualistic behaviour of the boxer should the coach wish, but as part of a long-term, on-going mental training programme.

Massage can play an important role in preparing senior boxers for a bout but the coach should use it with discretion. It can be used as a general stimulant, to assist the joint stretching, loosening-up process, and as a general psychological aid. As important as the manipulative movements with the hands and fingers are the quiet words spoken to soothe the over-anxious boxer, or the strong words of encouragement to lift sagging morale. Tactics can be programmed into the massage. The duration should not exceed four to five minutes and can be directed to parts of the body the boxer feels need 'special attention'. There are some general points relating to massage which the coach should be aware of:

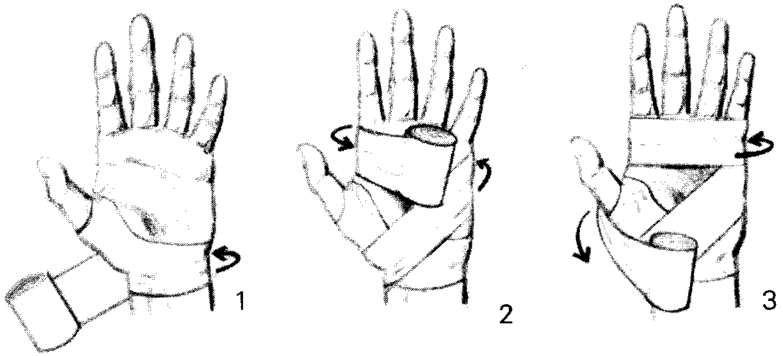
1. Pre-bout massage can only be done with powder no rubbing oils or embrocation are permitted by ABA rules.
2. Once a boxer has acquired a taste for the massage it becomes an essential part of his pre-fight ritual which the coach must provide.

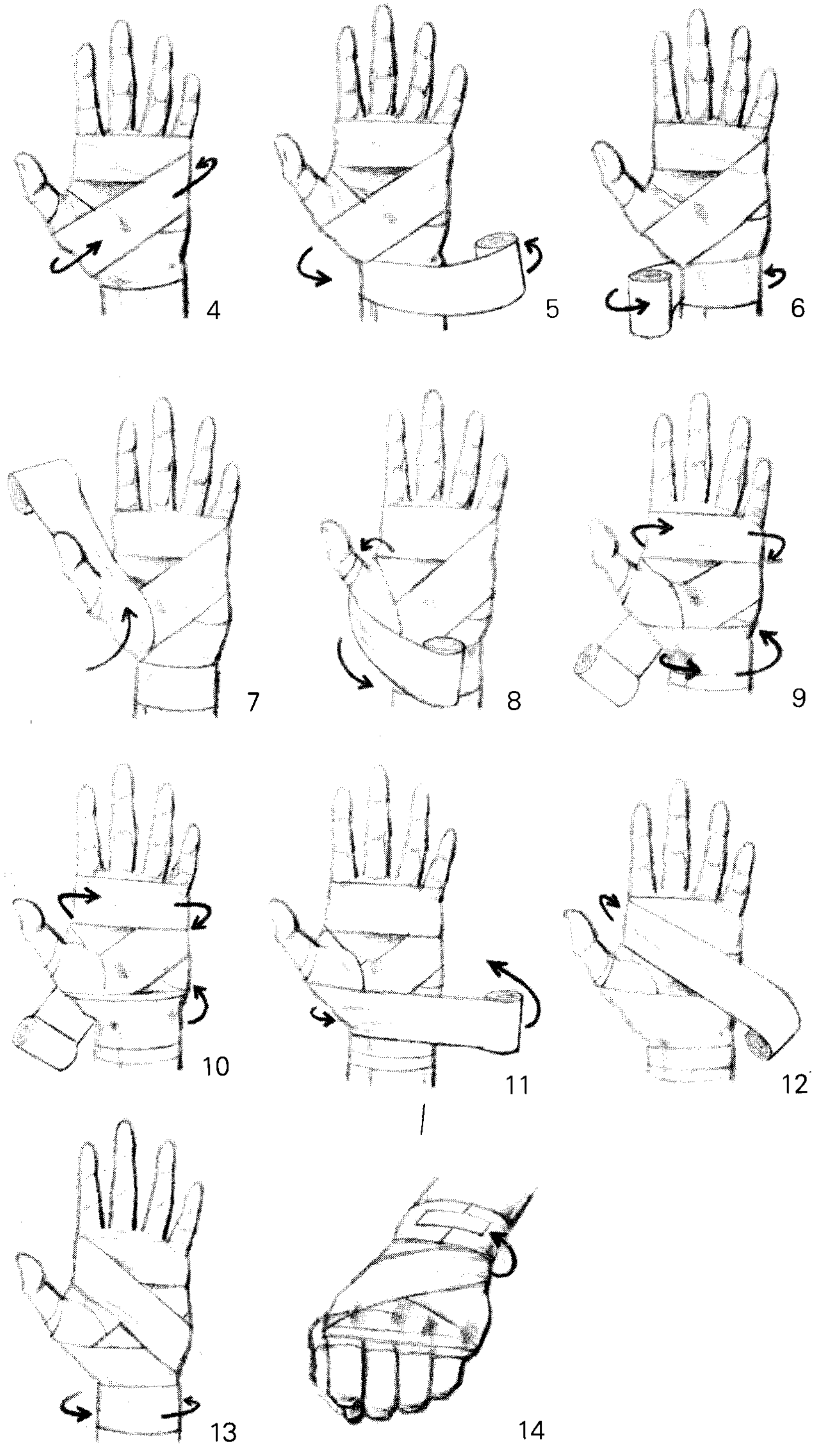
3. To achieve a real benefit the massage should be conducted on a table with the boxer in a totally relaxed, comfortable position.
4. To ensure that there is no risk of harm to a boxer, a coach should know what he is trying to do before attempting to massage. Attendance at a recognised course would form a sound basis.

Bandaging Hands

The main purpose of bandaging hands is to prevent injury. There is a need to combine the support from the five metacarpals on the back of the hand, the eight carpals of the wrist with the most vulnerable point of all – the thumb. A properly worn bandage holds the thumb in a closed protected position as figure 134 shows. Ideally the boxer should practise his own bandaging in the gymnasium. No one method of bandaging will suit all boxers. Individual variations will exist in hand signs, bone structure and inherent weaknesses. It is important for him to feel the right degree of tension in the bandage which his hands need. For training and competition it is essential to begin with clean, rolled-up bandages. Fingers should be spread to a comfortable distance. Initially the coach should closely supervise the method of applying bandages, advising as needed. The boxer is allowed to use three inches of tape to secure the end of the bandage. No other tape is allowed.

Figure 134. Bandaging.





The Warm-up

A warm-up is a must for every boxer. Physically the value lies in raising the core temperature, with the resultant benefit for the transmission of nerve impulses. Even in warm weather a boxer needs to go through a warm-up routine. Though superficially he may feel warm, the deep lying muscles need the lubrication of the circulatory system. There also follows a shift in the pattern of blood flow distribution to the working muscles, away from the skin and organs. Joints and muscles are stretched through their full range of movement. The danger of injury is thus reduced, and the rise in pulse indicates the physical readiness of the body for action.

Though some physiologists have expressed doubt as to the physical value of a warm-up, the psychological value is indisputable. A boxer with a warm-up routine has the means of inducing relaxation and confidence. As he gradually proceeds through his much rehearsed routine, no matter how strange the surroundings, how important the occasion, the familiarity of the routine will help to promote the desired frame of mind. The warm-up should begin with whole body movements in order to stimulate circulation. Localised exercises follow which are based on the individual's needs. Particular emphasis is placed on the neck, arm-shoulders, hip, dorsal area, and hamstrings. Limbs are shaken and stretched to full extension both with and against the joint, figure 135 shows exercises which may be included. Boxers should be encouraged to be systematic in their approach, ensuring that all exercises are performed with controlled precision. They should be made fully aware of the importance of a thorough warm-up, otherwise they will tend to cut corners and revert to a haphazard shadow boxing routine which will have little effect.

Stage two of the warm-up is specific to the contest. Once the coach has established the right degree of relaxation and considers that his boxer is mentally adjusted for the competition he should now direct his boxer to the specific tactics to be used. The timing of the warm-up in relation to the bout is critical. Just prior to entering the ring his level of arousal should be at the optimum. Too long a warm-up can cause the boxer to reach the desired level too soon, too short a warm-up will leave the boxer below par. Should the latter be the case then the boxer will spend much of the first round adjusting his mind to the competition. Here the role of the assistant coach is important by feeding back information on the earlier bouts, especially if any end inside the distance. As the general warm-up progresses, the coach should verbally supply the right degree of support for that particular boxer. Linked to this is the vital will to win aspect of all the psychological preparation. Each boxer has his own optimum level of arousal to produce a top performance. Age, level of skill, experience and temperament, will be major influences together with the importance of the occasion and strength of opposition. Which approach the coach uses will depend on his knowledge of the individual boxer. Simply expressed, the following diagram shows the optimum level of arousal – based on the Yerkes Dodson principle.

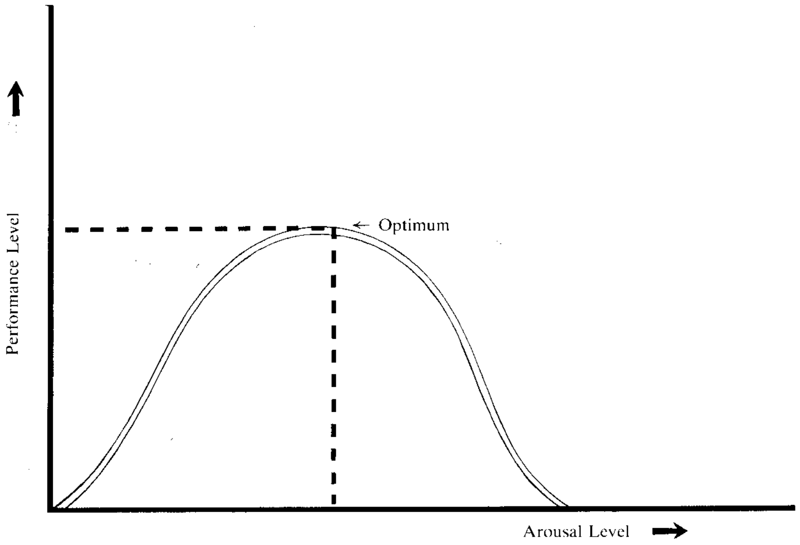
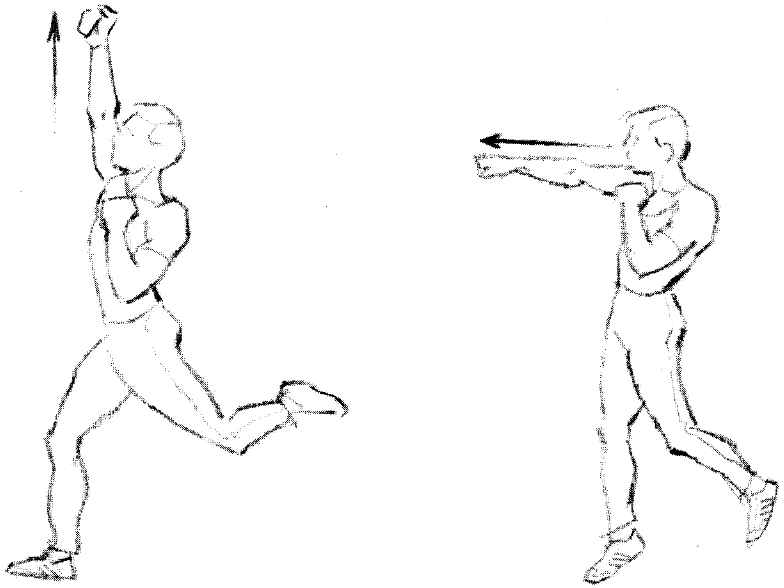


Diagram 21. Producing the top performance.

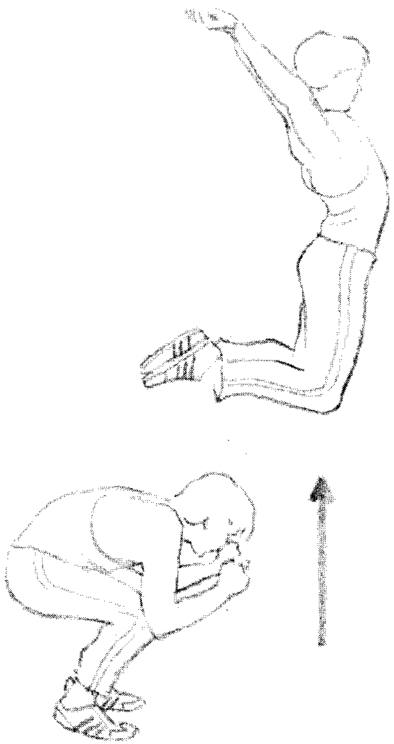
The final stage of the warm-up involves tactics ideally with the coach using coaching pads. By hitting the pads the boxer sharpens his sense of timing and judgement of distance. Research has shown that visual acuity can be improved markedly with this approach. Both speed and accuracy of punching can be worked on separately as the coach provides positive feedback on the quality of the skills, especially those specific to the tactics to be used. This feedback augments the feeling that the boxer gets from striking the pads. He will gradually feel more relaxed and confident and throughout this practice the level of motivation is being maintained. With experience the boxer should learn to select the stimuli from the competitive environment which will boost his performance – the atmosphere in the dressing room, the crowd, his own aspirations. He should see where the immediate objective slots into his short and long term goals.

His towel is then placed round his neck, his dressing gown fastened, he is ready for his bout.

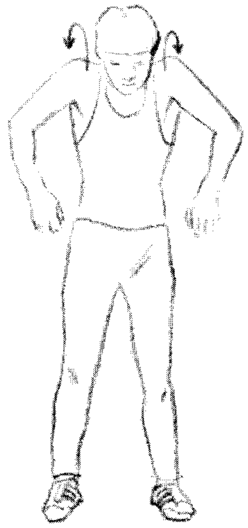
Figure 135. General warm-up exercises.



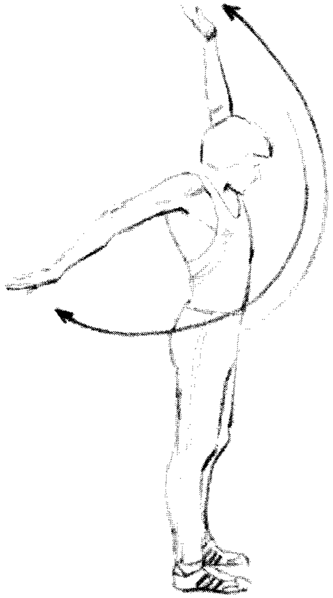
Running and punching in different directions and angles.



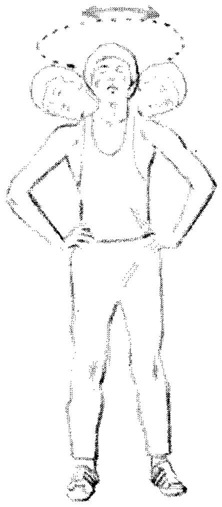
Jumping.



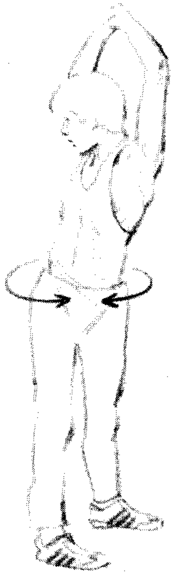
Shoulder rotation.



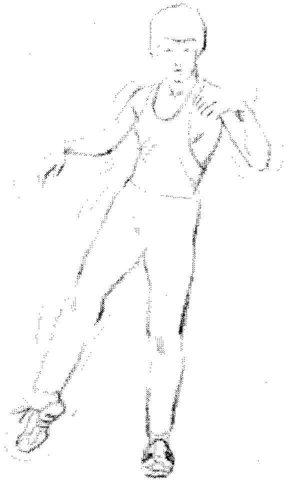
Arm press backwards.



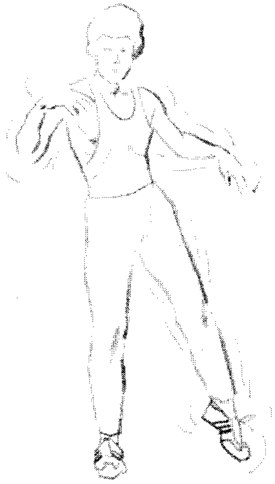
Neck rolling.



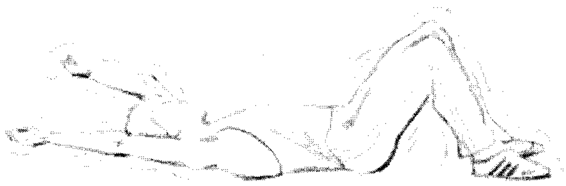
Trunk twisting.



General body loosening (1).



General body loosening (2).



Leg loosening.

(d) During the Contest

Not only must the boxer prepare mentally for the contest so too should the coach. He must attune himself to that pattern of preparation which the boxers need. In terms of priorities he is concerned with the physical well-being of his boxers, success should be of secondary importance. His own nervous tension has to be controlled and this should usefully sharpen his mental processes; otherwise he will be a hindrance to his boxer rather than a help in the corner. With experience the coach will be able to adjust to all levels of performance and vary his approach according to the age, experience and ability of his boxers, whilst bearing in mind that youngsters are there primarily to enjoy themselves. He should also ensure that he is fully conversant with the ABA rules appertaining to seconding and the procedure to be adopted in a corner.

Before entering the ring most boxers will require a mouth rinse which must be from their own beaker with clean water. The towel and dressing gown are then removed and the boxer enters the ring to be inspected by the referee. He should be properly attired wearing a sash and cup protector. Boxing gloves should be securely fastened at the back, and coaches are reminded that no vaseline is allowed on the boxer's face. The referee beckons the boxers to the centre of the ring following the MC's announcement to be reminded of the rules and shake hands. They then return to their corner for the bell.

Whilst the first round is in progress the coach should assess *(a)* his own boxer's performance, *(b)* the strength and weaknesses of his opponent and *(c)* the effectiveness of the tactics being adopted. A stop-watch can be used by the assistant second to inform his partner when the round has nearly ended. The boxer returns to his corner and generally will prefer to sit. Should he wish to stand he must face the referee at all times. Whilst sitting the boxer should be comfortably relaxed, with feet flat on the floor, knees slightly flexed and arms resting on his lap. The coach removes his gum shield and passes it to the assistant second to be rinsed. The boxer's towel is placed around his chest under his chin.

Any injury should be immediately dealt with by the second. Cuts should be dabbed clean with sterile gauze before applying an adrenalin pad and a degree of pressure on the closed cut. Any serious cut should be brought to the attention of the referee. Slight swellings or bruises can be rubbed towards the lymph glands and/or ice pack applied. A nose bleed is best dealt with by pinching the nostrils and tilting the head forward. If this should happen then the restricted breathing will make a mouth rinse impossible between rounds, but that does not matter – the second's priority is to deal with the injury.

During the whole of the interval the coach should make a few short, clear points as to moves and tactics for the next round. Part of the verbal instruction should be to maintain levels of motivation and concentration. The manner of expression should reflect the result wanted. Points made in a smooth, unhurried voice will calm the boxer to a more controlled relaxed level, should he be 'trying too hard'. A sharp, urgent tone will boost the effort needed. If there is no injury needing treatment the second may refresh the boxer by sponging the face and neck. Easing away the waistband of the shorts aids deeper breathing. When the rate of respiration has subsided to a controlled level a mouth rinse with water may be given. The boxer's face, arms and gloves should then be dabbed free from moisture, the gum shield returned and the second leaves the ring on the order from the time-keeper. At no time should a second advise his boxer during the course of a round. Should he do so, he may break his boxer's concentration and is liable to get him disqualified. Advice between rounds should be based on the boxer's skill and experience, otherwise the second is in danger of asking the impossible from his boxer. Just before the end of the rest period the tactical instructions are repeated to ensure that a clear positive picture is left in the boxer's mind. The final words of advice should include an anticipation of the opponent's immediate tactics. Positive advice from the second can help his boxer reduce the response time if he knows in advance the moves he will reply with.

(e) Post Contest

It is a good habit to follow a bout with a stretching routine. This will aid recovery as the waste products are squeezed from the muscles and joints mobilised. The boxer should wear a dressing gown to retain the heat and ensure that the warmth is

retained and his body temperature allowed to return to normal slowly. Any treatment of injury should be undertaken after showering. Immediate expert medical advice should always be sought – especially if the referee has stopped the contest, the second retired his boxer by throwing in the towel, or in the event of a KO. In the light of suspected concussion the boxer should be taken to a hospital for a thorough check-up and afterwards accompanied home. Then the coach must tell the parents or someone living in the house what has happened. Post-contest massage can be beneficial if the boxer is competing again on the same day, and should be carried out in this case by a suitably qualified and/or experienced person.

An analysis of the boxer's performance is best left until the next gym session. Frequently the excitement of the occasion makes objective analysis impossible for the boxer. A few words of praise always helps. If he has lost it is important that the coach gives him encouragement on the quality and effort of his performance. Should the boxer have taken defeat badly, the coach must lift his morale, especially if the boxer considers the verdict unjust. In such cases the coach can help the boxer by setting an example in controlling his emotional reaction. Ironically, a boxer often learns more in defeat than in victory. Success tends to vindicate a poor performance. In time a boxer should be as concerned with the quality of his performance as he is with winning.

A boxer might be tempted to rationalise his mistakes. Reasons not excuses should be sought in the analysis. Feedback from the coach should be objective and uniform and both boxer and coach should express their opinions and views on the contest. Deviations from the tactical plan should be assessed, exposed weaknesses in technical make-up appreciated and the feedback used to motivate the boxer in training.

If he gave all then no more can be asked. The effect of praise from his coach should never be underestimated. An integral part of the boxer's performance is the preparation beforehand. Here the coach should become a self-analyst and ask himself – was the boxer fit, mentally prepared, were the right tactics used? This leads him to appraise the training programme leading up to the contest. Complete honesty and objectivity are required if the analysis is to be fruitful. In fact the answer could lie outside the boxing environment, a symptom of the boxer's life-style or a result of an emotional disturbance at home or work. No boxer is a robot. All are subject to the stresses and strain of life. Boxers and coaches all have a biological cycle which controls their hormone production, heart beat, mental agility and powers of concentration. These might well be major factors especially if the contest took place when the boxer was at his lowest ebb.

10

THE MEDICAL ASPECTS OF AMATEUR BOXING

Boxing has a very wide appeal both as a sport and as a spectacle. It has the greatest following in ABA clubs, boys' clubs, and the armed services. Internationally, it is a recognised sport in the Olympic, Commonwealth and European Games. There are about 900 clubs affiliated to the Amateur Boxing Association in England and it is estimated that there are about 60,000 active amateur boxers.

Let us consider the so-called 'disadvantages' of boxing. We have been told that boys receive unnecessary punishment, that they may sustain physical damage and that boxing brings out the worst in a boy. As far as amateur boxing is concerned we can refute these charges by giving an outline of our methods to ensure that only fit boys are allowed to box, that every step is taken to prevent unnecessary or serious injuries, that injuries are treated promptly and properly and that boys are prevented from boxing again until they are fit to do so. The Amateur Boxing Association and its affiliated bodies have introduced a scheme of medical welfare for boxers. I should like to say, in all fairness, that the controlling body of professional boxing also has a medical welfare scheme.

On joining a boxing club a boy is given a complete medical examination, with particular reference to his fitness for boxing, either by the club's medical officer or by a member of the medical panel, in London consisting of over 100 doctors who give their services gratis. If there is any suspicion of chest or cardiac disease, or if there is a suspicious family history, the boy is given a chest X-ray or an electrocardiogram. The ABA has, for example, a set standard of vision – 6/18 in the better eye and 6/36 in the worse eye. They do not accept boys with squints, and they have noted that in three cases boys with a squint had typical electroencephalograms of petit mal (minor epilepsy), three per second spike and wave forms. It is interesting to speculate whether these boys would have developed attacks of petit mal if they had been allowed to box. In all doubtful cases the boy is referred to a consultant for an opinion. They have found boys with cardiac disease playing football and swimming. One boy had a loud systolic murmur and on investigation was found to have a serious form of heart disease. Serious consequences might have ensued if this boy had been allowed to box without a previous medical examination. Another boy who had blood in his water at his initial medical examination was found on investigation to have a kidney tumour.

The boy is given a booklet which states that he is fit for boxing. He has to produce this every time he presents himself for a competition, and in it is recorded by the medical officer present any injury received in a bout and for what period of time he should stay off boxing. Thus, when a boy presents himself for a subsequent contest, a medical officer who examines him can see at a glance what previous injury he has received and can judge whether or not the boy has sufficiently recovered. It is also the duty of the official in charge of a tournament to see that the boxer's injuries and result of each contest are recorded on his card. A medical officer is present during the contest and attends to minor injuries (it is compulsory for an authorised first-aid box to be supplied by the organising club), while the more serious injuries are sent to hospital.

Boxing injuries rank tenth in frequency among sports injuries. There are far more injuries on percentage in skiing, hunting, motor cycle racing, rugby, association football and athletics. In 4,350 contests held under the auspices of the London Amateur Boxing Association in the season 1967–8, 137 injuries were reported, that is about three per cent. There were 42 cuts in the region of the eye, six of the lips, three of the forehead, two of the ears, three of the mouth and one of the nose. There were three fractured metacarpals, two fractured noses, 60 knockouts and nine cases of amnesia without loss of consciousness. In addition there were five sprains involving the metacarpo-phalangeal joint of the thumb or interphalangeal joints of the finger. In the season 1968–9 there were 2,400 contests with 132 recorded injuries. There were 28 knockouts, 14 cases of amnesia without loss of consciousness, 45 cuts around the eye, eight of the lips, five of the mouth, three of the face, three of the nose and one of the head. There were nine cases of black eye, four fractured metacarpals, five sprains of interphalangeal joints, two cases of bruised ribs, one bruised neck, one bruised arm and one sprained ankle. There were two cases of vomiting of unknown origin.

The commonest boxing injury is simple nose bleeding. This can easily be stopped during rounds by sitting the boxer upright, pinching the nostrils and applying a cold sponge. More severe bleeding may indicate obvious damage to the septum and this will mean early removal to hospital where the bones can be manipulated with Walsham's forceps before bleeding and oedema cause obstruction.

Deflected Septum

A cartilage injury is relatively common and may cause considerable nasal obstruction, damage to the ethmoid or vomer is rare. Manipulation should take place within 10 days, though often when oedema subsides manipulation is found to be unnecessary. Boxing can be resumed after two to three months. If manipulation is unsuccessful a submucous resection will be necessary. In this case and also when remodelling of nasal contours is involved boxing must be given up.

Fractured Nasal Bones

This is rare; two cases in 4,350 contests. Elevation by Walsham's forceps is indicated, boxing should be forbidden for three months.

Abrasions

These are common on the face and skull. Bleeding should be stopped by pressure; fibrin foam applied with pressure on a pad of gauze or cotton wool is usually successful in obstinate cases. Bathing the wound with warm saline is followed by the application of cetrimide (one per cent) and a light dusting with sulphathiazol powder. Antibiotics should not be applied locally as they may cause sensitivity reactions.

Lacerations

These are usually caused by the opponent's head. When the wound is dry and has been cleaned as indicated above, it should be sutured to ensure sounder and more rapid healing as well as less disfigurement. The so-called 'cut eye' is usually situated over the supraorbital ridge or in the upper eyelid. In the scalp if the wound has gone through the thickness of the skin suturing is essential, coating the whole of the cut surfaces. Elsewhere if there is no contusion and no dead space in the depths, it can be closed by approximating the skin edges. Von Horff's clips are an easy and quick way of getting the edges of skin together. A gauze dressing with collodion is applied and the clips are removed after a few days. Small dry wounds can be held together and sealed with plastic material, e.g. Nobecutane. The most suitable suture material is silk thread. This can be obtained already threaded into small curved needles in sterile containers, and a Gillies needle-holder is most useful. Sutures should be removed not later than after five days. Dumb-bell plaster strips or steri-strips applied at right angles to the wound are also useful. Boxing should be prohibited for at least four weeks.

Haematomas

The common-or-garden black eye hardly ever needs treatment but cold applications limit the extravasion of blood. A haematoma of the auricle, if seen early, requires aspiration and the injection of hyalase, one–two ml. Otherwise the clot must be excavated, the wound plugged and allowed to granulate from the bottom.

Serious Eye Injuries

These are very rare. I have seen four cases of detached retina in amateur boxers in 30 years, but then I have seen four cases occur after squash rackets!

Fractures and Sprains

The commonest fractures are of the first metacarpal. Fracture of the shaft usually occurs within the proximal third of the bone. Any significant displacement or angulation should be corrected by manipulation under an anaesthetic followed by immobilisation for three to four weeks. This is followed by active movements, painless function is restored in six to eight weeks.

The Bennett type of fracture of the base of the first metacarpal involves a true dislocation of the first carpometacarpal joint. Reduction is carried out by skin, pulp of skeletal traction for three weeks, applied to the thumb in abduction which is incorporated in a below-elbow plaster-of-Paris cast. Immobilisation is maintained for a further three weeks, followed by active movements. Boxing can be resumed after three months.

Fractures of the shafts of other metacarpal bones seldom require anything more than plaster-of-Paris protection for a week or so. If there is angulation or shortening due to overlap, manipulative correction should be undertaken and the wrist and metacarpals immobilised for three to four weeks. Boxing can be resumed after eight weeks.

The commonest joint to be damaged is the first metacarpophalangeal joint. There may be extensive damage to the capsule with possible rupture of a collateral ligament, or a chip of bone may be avulsed. Immobilisation in semiflexion for three weeks is essential followed by active exercises. Operative repair may become necessary. Boxing may not be possible for six weeks. Sprains of the interphalangeal joints should be treated on similar lines.

Fractures of the limb bones and injuries to other points are extremely rare in boxing, although I have had to replace a displaced semilunar cartilage in the ring, and have seen one case of a dislocated hip!

Fractures of the skull and intracraneal haemorrhages are very rare. There have been seven cases in 13 years.

Fracture of the jaw is also rare. The average is about two a season. A boxer should be given first-aid treatment and if there is a dislocation present this should be reduced first by pressing on the lower molar teeth downwards and backwards while moving the chin upwards, he should then be sent to a maxillo-facial unit. Boxing should be forbidden for six months.

Concussion

This is caused by a direct blow to the lower jaw, by an accumulation of the effects of blows on the cranium or by the head striking the floor of the ring. Unconsciousness may also be caused by a blow on the carotid sinus (in the neck), a blow over the heart or, rarely, by a blow to the solar plexus. In the latter case the boxer usually remains conscious throughout though there is a reflex temporary paralysis of his legs which prevents him from rising. I have seen boxers suffering no ill effects following this blow. Most boxers regain consciousness by the count of ten and are able to walk to their corners unassisted. If consciousness has not been regained by the end of the count the boxer is allowed to recover on the floor of the ring. His head is supported and turned to one side, making sure that there is a good airway. If he remains unconscious for any length of time he should be removed from the ring on a stretcher and sent to hospital for observation. If there is retrograde or post-traumatic amnesia, loss of memory of events before or after the final blow, even without loss of consciousness, this should be treated as concussion and the patient admitted to hospital. Only about one per cent of the bouts are decided by knockouts in the course of a tournament. For a boxer to become dazed by a head blow more than once in a bout is unusual.

Post-traumatic epilepsy has never been encountered, while the punch-drunk syndrome has been seen only once in an

amateur boxer. This one case concerned an army boxing instructor who took on all and sundry for eight hours a day, five days a week, and developed cerebular atrophy. Dr MacDonald Critchley kindly investigated the case for me.

Very little seems to be known of the supposedly punch-drunk ex-pugilist's intellectual capacity during his pre-fight years, his environment, his heritage or his educational advantages. A bashed-in nose, scars over the eyes and cauliflower ears are not indicative of cerebral disfunction. I have seen more cases of cauliflower ears and broken noses amongst professional rugby football players than boxers.

The electroencephalogram has been used in the detection and prevention of cerebral complications. The more severe the injury the more severe and persistent is the electrical abnormality. There is a lack of correlation between the clinical and EEG findings. Comparable trauma in a young person produces severer changes than in an older subject. Before the Medical Welfare Scheme when boxers were allowed to box soon after concussion, 48 boxers were studied by the EEG, 24 of whom had received one or more recent knock-outs, the others having suffered none. Their ages varied from 17 to 21 years, and they were all examined within two weeks of the injury. Four of the group which had suffered knock-outs had abnormal EEGs. All were under 20 years old. The abnormality observed was a diffuse slowing and no focal disrythmia was recorded. In all cases this had disappeared within two months of the injury. One boy who had been knocked out four times took the longest period to return to normal. Since the introduction of the four-week enforced rest period after concussion or RSC(H) 78 boys were examined over a period of four seasons who have had severe concussion but no abnormal EEGs have been found. A hundred boxers had their skulls X-rayed to try to correlate the thickness of the skulls with proneness to knock-outs. One boy was found to have thin frontal bones and was banned from boxing, but no correlation could be found between the two.

Kaplan and Browder in the United States made a study of 1,043 professional boxers, with particular reference to head injuries. The method of study consisted of observation at the ringside, analysis of head blows with slow-motion photography and electroencephalography. Observations at the ringside and more detailed examination in the dressing room after the bout failed to reveal any abnormal neurological features even in those contenders who lost their bouts by a knock-out. A critical view of slow-motion photography of segments of bouts confirmed one major impression gained at the ringside: namely, that blows to the head were short of their mark or deflected by the opponent.

Correlation of the physical features and performance data of each boxer with the EEG failed to reveal any significant statistical results except in the rating class, where the statistical results indicated that those lower in ring rating have the greater percentage of EEGs. In other words capable performance in the ring is frequently associated with a well-organised EEG pattern, one seeming to complement the other. The EEG primarily serves its purpose in boxing in the direction of grossly disorganised or changing brainwave patterns. No significant statistical relationship was found amongst the boxers which related to any particular age, no statistical relationship emerged amongst those with less than 25 bouts and those with 50 bouts, nor any relationship between the slugger and the boxer, no statistical relationship as regards different weights, nor amongst those winning more than 75 per cent of their bouts and those losing more than 50 per cent, nor between the knock-out and non-knock-out classes.

In another study, 100 amateur boxers were examined before boxing. Their ages were between 17 and 27 with a majority between 19 and 20, followed by the 22 to 23 group. All had had a complete medical before boxing.

The recording apparatus was a portable Ekco with eight leads which was placed in a room communicating directly with the hall in which the boxing took place. In order to note the degree of injuries and their consequences the progress of the bouts was followed. On leaving the ring the boxer who had been injured was taken immediately to the examination room. Two assistants facilitated the rapid preparation of the subjects. Out of 100 boxers who had had a previous systematical EEG we were able to examine 52 cases in four to six minutes.

Forty-eight per cent of the 100 boxers examined before boxing showed continuous waves in the posterior region. These were not pathological, but appeared in men whose constitutions showed immaturity and aggressiveness.

In 25 out of 52 cases, i.e. in 48 per cent of cases, the graphs had altered; 16 times in the alpha intervals, five times in the slow posterior waves and four times in the short intervals. It was noted that the increase in asymmetrical amplitude was always observed in the dominant hemisphere in right-handed people.

The categories of the contests were divided as follows:

1. Knock-out – the bout ending in a knock-out.
2. The boxer was knocked down several times without loss of consciousness or was dazed without falling.
3. Boxers who received numerous blows to the face and head.
4. Those who received few blows to the face and head.

In the first category there were three with alterations and six without. In the second category two with and three without, in the third category 15 with and 13 without, in the fourth category four with and six without. There is no correlation therefore between the degree of trauma and the EEG pattern. When a match ended with loss of consciousness there were twice as many unchanged tracings as changed. One of the boxers who was knocked out by striking the back of his head on the ring floor, and was still disorientated when the EEG was taken showed no changes in his tracings.

It was concluded that alterations observed after boxing are not pathological. The changes are functional or physiological. EEG tracings are greatly disturbed after injury but the alterations do not persist after four minutes even when there has been loss of consciousness for more than ten seconds.

When evaluating the results of EEG examinations, the possibility of the existence of significant posterior slow waves prior to the trauma must be considered, and these must not be interpreted as a manifestation of recently acquired disturbances. Some neurologists based their conclusions on these erroneous observations.

General Safeguards

1. The referee has strict instructions to stop a bout if a boy receives a cut or abrasion, if a boxer is obviously outclassed, if he is knocked down and appears dazed on rising, if he cannot defend himself and if the second retires his boxer by throwing in the towel. A boy who is knocked down or hurt by a blow without going down is subject to a mandatory eight count. The referee has the power to disqualify a boxer for butting, using the elbow, rabbit punches, kidney punches, wrestling, ducking below the belt (when head may strike opponent's abdomen) or for low punches.
2. The gloves must weigh at least 227g (eight ozs.), be well padded to soften and spread the blow and be laceless to prevent lacerations. Boxers should bandage their hands to protect the metacarpals and the metacarpo-phalangeal joints.
3. Boxers should wear mouth-pieces made of a resilient material which allows mouth-breathing. The resilient mouthpiece diffuses a blow on the chin which is the most lethal and transmits the damage to the base of the brain.
4. A head injury may be caused by the occiput striking the floor and recently the London Amateur Boxing Association has approved the sorbo-rubber or felt floor covering five-eighths of an inch thick.
5. Jock-straps and cups are compulsory.

The Use of 'Buccal and Oral Varidase' in Boxing Injuries

The encouraging reports of the value of streptokinase in removing the aftermath of trauma and inflammation, and in encouraging normal repair of tissues, prompted me to undertake an investigation of its possible role in the management of boxing injuries.

Varidase is a highly purified and concentrated combination of enzymes produced by a strain of streptococcus. The tablets which were used in the investigation ('varidose') each contained 10,000 units of streptokinase and at least 2,500 units of streptodornase.

In acute inflammation there is an increase in vascular permeability which allows plasma and cells to leak through the capillary endothelium and accumulate in the surrounding tissues. Fibrin is formed and this produces a 'limiting membrane' around the inflamed area resulting in a walled-off abscess containing a purulent material. The fibrin membrane thus prevents the natural defences of the body, and antibodies, from reaching the abscess. Streptokinase activates plasminogen so the fibrinolyctic is formed. This plasmin breaks up tissue permeability and destroys lyses fibrin, in this way the 'limiting membrane' is destroyed, oedema is reduced and the inflamed area becomes again accessible to the body defences and antibodies.

Method of investigation

The investigation consisted of two parts. In the first 494 boxers participated; 247 of these were given two varidase tablets a half to one hour before boxing. The remaining 247 constituted a control group and were given dummy tablets a half to one hour before boxing.

In the second part of the investigation 142 boxers participated; 88 of these were given four varidase tablets daily for three days following a boxing bout, whilst 54 were given dummy tablets for the same period.

Results

The results of the first part of the investigation are summarised in the following table. From this it can be seen that there was a much smaller incidence of haematomas and of general bruising and superficial abrasions among those using varidase than among the control group who received dummy tablets. The incidence of haematomas was reduced from 18 to seven, whilst that of bruising and general abrasion from 21 to 14.

The results were equally impressive in the second part of the investigation. Among those receiving varidase, bruising, abrasions, haematomas and sprains cleared in four to five days and boxing was resumed in one week, whereas in the control group they took two to three weeks to clear. By an interesting coincidence the boxers in part of the investigation included two identical twins, aged 17, and one of them was included in each group. The twin who was given varidase tablets developed bruises of the shoulders, which cleared in five days, whilst the other who received dummy tablets acquired two black eyes which took two weeks to clear. Equally interesting was the response to cuts in the two groups. In the 'varidase' group four boxers acquired cuts in the upper lip. These did not require suturing and healed within a week whereas normally they would have been expected to take four weeks to heal. Another four boxers in this group had cuts in the orbital region; these were sutured and healed completely in two weeks compared with an expected period of four weeks. In the control group four cuts which required suturing took four weeks to heal completely.

Group	Injury			
	Cuts	Haematomas	General bruising and superficial laceration	Sprains of inter-phalangeal and metacarpo-phalangeal joints
Varidase Group (247)	8	7	14	8
Control Group (247)	6	18	21	7

Buccal varidase is now made in tablets and can be swallowed instead of being allowed to dissolve in the mouth.

It would thus appear that 'buccal varidase' is a useful prophylactic for boxers. Its use resulted in a 50 per cent reduction of general bruising and an 11 per cent reduction of haematomas, whilst the period away from boxing for those who received cuts was reduced from four weeks to two weeks and haematomas and bruising cleared in four to five days.

When taken up to four days after the injury it facilitates the elimination of bruising, haematomas and necrotic tissue.

These results in boxing injuries suggest that prophylactic varidase might well be of equal value in other forms of sport or in any situation in which trauma is anticipated.

Ananase can be used in the same way prophylactically and for treatment. Chymoral is used for treatment only.

MEDICAL REGULATIONS AND ADVICE FOR COACHES

Preparation for a Tournament

1. Anti-inflammatory agents (Varidase, Chymoral, Ananase and Hirudoid)

Varidase taken by mouth may be used prophylactically some one to two hours before a bout when it is known that a boy bleeds easily. When during a bout the boy sustains a cut or bruise, Varidase, Ananase or Chymoral taken by mouth after the contest will tend to promote healing and reduce swelling (two, four times daily after meals).

2. Drying out

A boy needs at least two and a half pints of fluid per day. To restrict fluid in order to lose weight is dangerous as it may result in liver and kidney damage. A growing boy needs adequate nourishment, so prior to a contest light meals are advisable.

3. Sweating

Sweating just prior to a contest in order to lose weight is undesirable and should be avoided. Sweating causes body fluid and salt loss and this tends to weaken the body and may cause cramp.

4. Vaseline

Vaseline applied to a cut or face before a contest may cause the opponent's glove to slip and dirty vaseline may get into the boxer's eyes, or the gloves' laces may cause facial damage. For these reasons it is forbidden by ABA rules.

5. Embrocation

The use of embrocation or spirit immediately prior to a contest is forbidden. In the clinches when the body is warmed up, there is always a danger that the embrocation mixed with sweat may get into the boxer's eyes and cause damage. To some the smell of embrocation is offensive and may affect breathing.

6. Long hair

Boxers should be persuaded if possible to avoid long hair. Hair in front of the eyes limits vision and may cause damage. The ABA rules state that hair must not extend below the level of the eyebrows.

7. Beards

Boxers with beards present a special hazard as in the clinches the beard may rub an opponent's eye causing scarring of the conjunctiva and cornea. Stubble on the face is equally dangerous and an unshaven boxer has to be watched carefully. Several cases of scarring in amateur boxing have already been reported since beards have become fashionable. Again, the ABA rules forbid beards.

8. Gum shields and dentures

No boy should use a borrowed gum shield. Preferably gum shields should be fitted by a dental surgeon but whether made to order or moulded, gum shields should fit snugly and accurately. Ill-fitting shields are useless and may even cause buccal (inner cheek and gum) irritation or more serious damage. No boy should be permitted to wear dentures during a contest.

9. Rest after contests

No boxer who has had an exceptionally hard contest, win or lose, should be permitted to box except in championships until he has had at least seven to ten days' rest following the contest.

10. Boxing after illness

As many keen young boys are only too anxious to box under any circumstances, coaches would be well advised to inform the tournament medical officer of any recent disability or illness which confined the boy to bed, thus avoiding possible serious complications which may arise if the boy is allowed to box too soon after recovery.

During a Bout or Tournament – Instructions

ABA rules forbid instructions being given whilst a bout is in progress. Instructions during a bout may distract your own boy's attention and leave him open to attack and damage. Not only the referee but any official is empowered to admonish any second disobeying this rule.

1. Stimulants

ABA and AIBA rules forbid the use of all stimulants with the exception of water. Smelling-salts contain ammonia a stimulant which may increase nasal haemorrhage, and must not be applied during a contest.

2. Dressings

ABA and AIBA rules forbid the use of dressings on the face, neck or scalp during a bout. No boy should be permitted to box following vaccination until the scab has separated and a dressing is no longer necessary. Contact with a vaccinated arm before the scab has separated may result in extensive cow-pox covering the whole of the opponent's body.

3. Haemorrhage

To arrest bleeding from a cut on the eyebrow or face, only sterilised gauze or gauze soaked in 1–1000 adrenaline should be used to dab, not rub, the cut. A wet sponge should not be used as it tends to increase the bleeding, widen the cut and if dirty infect the wound. If a bout is stopped owing to a haematoma, the common black eye, a cold compress and light compression is all that is necessary unless the swelling is extensive and needs aspiration. After the bout lacerations or cuts should be cleaned and dried with sterile gauze and dumb-bell sutures applied. To arrest bleeding from the nose or ear, squeeze the nose or bleeding point on the ear between the fingers. Gauze soaked in 1–1000 adrenaline may be used cautiously. Do not plug the nose as there is always a danger that the plug will be inhaled into the posterior nares (back of the nose) and can then be extracted only with difficulty with a special forceps through the mouth. In exceptional cases a particularly strong intake of breath through the nose may drive the plug into the lungs. Do not plug the ear as the plug may damage the ear-drum and may even in exceptional cases damage the brain. To arrest bleeding from the tongue or lip apply light compression but the mouth must be kept clean to avoid infection.

4. *Unconsciousness*

When a boxer is rendered unconscious it is advisable to call for the doctor although he is not allowed to enter the ring until invited to do so by the referee. Do not move the boy until he has recovered consciousness but turn the head and body to the side in case he vomits, and hold his tongue with gauze to prevent it from being swallowed. Most boxers recover in a few seconds but if the boxer remains unconscious he must be removed on a stretcher and sent to hospital. In all cases the boxer should be escorted home or to hospital.

5. *Sponges*

It is desirable that each boy should have his own sponge and clean water. The habit of wiping an opponent's face after a bout should be discontinued. It is unhygienic and may even cause gross infection. Sponges in dirty water or picked up from the floor should never be used to examine a cut or wipe a boy's face. As a general rule gauze not a sponge should be used to examine a cut or laceration. For this purpose it would be advantageous if seconds at the ring-side carried a small supply of sterile or clean, dry gauze.

6. *Fractures*

Although fractures are extremely rare in boxing it is well to point out that fractures should be dealt with by trained personnel to avoid a simple fracture being converted into a compound fracture. In the case of a leg fracture the sound leg should always be moved to the fractured leg, never vice versa.

7. *Low blows*

Support the testicles and bend the thighs towards the body while the boy is lying on his back. If the blow is severe this will minimise the pain and shock. For protection a boxer should always wear a jock-strap or cup.

11

PLANNING THE PROGRAMME

Every coach faces the same problem of getting his boxers to full potential in terms of technique and fitness. That is as far as the similarity goes, each club has its unique character, each boxer requires different handling, and each coach has his own approach. Hence the way one comes to terms with the task in one club could be different from the solution evolved by another, each could be equally 'right'. One would expect to see some degree of usage by all coaches of skill coaching, gym work, circuit training, interval running and weight training. How much of each is for each coach to decide. He alone knows his boxers, their weaknesses, potential and depth of dedication. What is called for is a systematic programme, a gradual shaping of the training load, which brings the boxer to something approaching peak fitness at the desired time of the season. In short a planned training schedule is needed.

Periodisation

There are in fact two training programmes to be considered – a long term and a yearly. Age must be a major consideration, one so often sees schoolboys of brilliant potential fading into oblivion before – or during the junior stage, when this is the time that they should be maturing into the senior ranks. There are many possible answers to this problem but one reason is that the coach has not orientated the long term programme as one would hope. The aim has been the schoolboy or junior championships as an end in themselves, instead of perhaps following a schedule of less intensification which

places those as part of the preparation for major titles in the senior ranks. The emphasis must be on a varied long term plan. Schoolboy and junior boxing being the means by which experience is gained, but the coach and boxer's aim is following a programme, physically and – more important – psychologically geared to maturity of potential as a senior. With seniors a similar project is needed but perhaps with the emphasis more on the conditioning schedule. Potential will not be realised in one season, three or four seasons would be a more realistic aim. Factors influencing this will be physique, type of occupation, motivation and the intensity of programme undertaken.

The question of maturity must be considered as it occurs at widely differing ages and often with physical maturity not coinciding with emotional maturity. Should the latter be the case much would depend on the coach's relationship with the boxer and extent to which advice would be sought and heeded even if was more directed to life in general than boxing.

Phasing Work Loads

The implementation of a yearly schedule presents very different problems. There are limiting factors such as the number of sessions at the coach's disposal, the number of boxers in the club and the space/equipment available. The aim should be to cover all the fitness factors – strength, and muscular endurance, respiratory efficiency, flexibility, speed, co-ordination and power bearing in mind the individuality of the boxer and the time of the year. There should be an emphasis on the fitness factors balanced against the fitness levels of the boxers and their seasonal objectives. The coach thus adapts the varied aspects of boxing training, gradually increasing the training load to produce peak fitness at the appropriate time. This might well be at the commencement of the championship but various important tournaments at any part of the season can call for the coach to adjust the training programme to sharpen his boxer for the big occasion.

Peak fitness can only be held for a short time. Any schedule attempting to sustain the length of time by keeping the boxers at maximum training performances will inevitably produce the symptoms known as 'staleness'. The coach must load the training programme accordingly, increasing the intensity and severity and decreasing the load in the breaks between important bouts. Basically this will mean high quality intermittent work for peak fitness and steady state work in between. It could be that a complete rest from boxing for a few days is required or a change of environment. There can be no hard and fast rule, each coach has his own commitments and individual personalities to provide for. The number of boxers he trains will also modify his approach.

Bearing these points in mind a general appraisal of the boxing year should be on a basic conditioning programme to coincide with the early part of the season.

Early Season

The senior boxer's running, circuit training, weight training and gym work, should be geared to the building up of a reservoir of strength, local muscular endurance and cardio-respiratory efficiency. One would therefore expect to see runs with the emphasis on the mileage covered rather than the time taken or duration of recovery, circuits of the individual 'full' or 'fixed load' type, weights being used in strengthening work and gym work being concerned with the maintenance of a steady effort rather than intensity of activity.

Mid Season

Once basic fitness has been achieved – the 'mileage put in the legs', a routine in the gym established, the coach should think in terms of a gradual transition to an interval approach to training – which lends itself to the fitness required in amateur boxing. This can be referred to the 'mid season' work, as it bridges the gap between early season steady state work and the ultimate goal of high quality spaced training. The factors of 'time taken' and 'duration of recovery' would now begin to enter the running schedule. Distances covered should be cut and speed/number of repetitions emphasised. Circuits are loaded to stress speed and the 'target' type could well be introduced into the varied programme. Weight training should be essentially aimed at ensuring that the strength level is kept rather than improving performance. Emphasis is on introducing a high work rate and conditioning the body to a quick recovery.

Peak Season

Peak season sees the culmination of the year's programme. Its occurrence will depend on the coach's schedule, but it can only be attained through the gradual intensification of training based on a hard core of solid, steady work fitness, perhaps built up over a period of three or four years. To attempt to plunge a boxer into the highly desirable high quality speed and endurance approach without this basis would be rather like building a house without foundations. For example in running where perhaps the traditional 'roadwork' approach is suited to early season work, peak season means a complete emphasis on speed. Distances can be cut to say 40 metres but the time taken and length of recovery are key factors. This is not to exclude any steady state 'easy' running.

In fact, variety is what counts and the occasional long run or fartlek will prove a welcome relaxation from the necessary basic intermittent approach. The basic diet in circuits might well be the target approach whilst more specific exercises geared closely to the basic techniques of boxing are used, and one would reasonably expect an increase in the number of circuits performed. Weights should still be in evidence. Research shows that the strength level in a muscle will drop no matter how often a boxer has bouts unless some place is made in the programme for the occasional compensatory strength session. It is stressed that – as with all speed work quality is essential.

Close Season

Lastly one arrives at the time of the year which is known as the 'close' season. Whilst accepting that a rest is vital for boxers and coach there are various forms that this can take. Some coaches see the close season as a period of rest from competition but concentrate on basic skills coaching. Many others close their clubs completely. Certainly for schoolboy boxers there is something to be said for it, though perhaps the occasional game of soccer might help keep the members together. Others consider that a change is better than a rest, a change in training or perhaps environment. Valuable work can still be done whilst giving a complete break from the gym routine. Close season is the time best suited to the acquisition of strength and power i.e. use of weights and power circuits. Every boxer has room for improvement, no boxer can be too strong or too skilful. The occasional fartlek is also to be recommended. This not only keeps the boxer reasonably fit but provides a link to the early season which will aid the gradual improvement in fitness. If this approach is followed of course there would be no gym work as such. Boxing gloves, training gear, could be 'sent for repair' as the boxers break with the clock watching, time conscious routine.

Having thus outlined the yearly schedule, the coach should bear in mind two salient points, firstly the importance of flexibility work cannot be overstressed, and should be featured in the programme throughout the year, secondly fitness can in no way substitute for skill. Boxing must be presented first and foremost as a sport of skill, physical conditioning is to enable the boxer to use skilled techniques throughout the contest, and to some extent help him absorb knocks taken.

No matter how severe a coach's training schedule, unless there has been a thorough and systematic coaching of skills, the value of the conditioning is lost. All training must be geared to the science of the ring and it is only under the pressure of the contest situation that the acid test of any training schedule will be found.

Appendix A

OFFICIAL ABA RULES

1. Ring

In all tournaments, the ring shall conform with the following requirements:

(a) The minimum size shall be 3.66 m (12 ft.) square and the maximum size 6.1 m (20 ft.) square, measured inside the line of the ropes. In ABA championships the minimum size is 4.88 m (16 ft.).

(b) The platform shall be safely constructed, level and free from any obstructing projections and shall extend for at least 50 cms (18 ins.) outside the line of the ropes. It shall be fitted with four corner posts which shall be well padded or otherwise so constructed as to prevent injury to the boxers.

(c) The floor shall be covered with felt, rubber or other suitable, ABA approved, material having the same quality of elasticity, not less than 1.5 cm (half an inch) and not more than 1.9 cm (three-quarters of an inch) thick, over which canvas shall be stretched and secured in place. The felt, rubber or other approved material, and canvas, shall cover the entire platform.

(d) There shall be three ropes of a thickness of 3 cm (1.18 ins.) minimum to 5 cm (1.96 ins.) maximum tightly drawn from the corner posts at 40 cm (1 ft. 3.7 ins.), 80 cm (2 ft. 7½ ins.) and 1.3 m (4 ft. 3 ins.) high respectively. The ropes shall be covered with a soft or smooth material.
The ropes shall be joined on each side, at equal intervals, by two pieces of close textured canvas 3 to 4 cm (1½ ins.) wide. The pieces must not slide along the rope.

(e) The ring shall be provided with suitable steps at opposite corners for the use of the contestants, officials and seconds.
(f) At all dinner/boxing tournaments a minimum distance of 2 metres shall be clear of all tables, excluding those required for use by officials.
(g) The only persons authorised to enter the ring shall be boxers, coach, referee, M.C. and medical officers on the instruction of the referee.

2. Gloves

The gloves shall each weigh 227 g (8 ozs.) except when otherwise specially sanctioned for junior competitions. The leather portion shall not weigh more than 113 g (4 ozs.), and the padding not less than 113 g (4 ozs.), which will be of a resilient foam moulding as approved by the ABA.

3. Bandages

A soft surgical bandage, not to exceed 2.5 m (8 ft. 4 ins.) in length and 5 cm (2 ins.) in width, or a bandage of the velpeau or crepe type not to exceed 2 m (6 ft. 6 ins.) in length, on each hand may be worn. No other kind of bandage may be used. The use of any kind of tapes, rubber or adhesive plaster, as bandages, is strictly forbidden, but a single strap of adhesive 7.5 cms (3 ins.) long and 2.5 cms (1 in.) wide may be used at the upper wrists to secure the bandages.

4. Dress

Competitors shall be dressed in accordance with the following:

(a) Competitors shall box in light boots or shoes (without spikes and without any heels), socks, shorts reaching at least half-way down the thigh, and a vest covering the chest and back. Where trunks and vests are of the same colour the belt line must be clearly indicated by marking of a distinctive colour.

Note: The belt is an imaginary line from the navel to the top of the hips.

(b) Gum shields may be worn, and a cup protector shall be worn, a jock-strap may be worn in addition.
(c) No other objects may be worn during the competition.
(d) The use of grease, vaseline or products likely to be harmful or objectionable to an opponent, on the face, arms or any other part of the body is forbidden.
(e) Beards are forbidden, and hair, the fringe in front, must not extend below the level of the eye-brows.
(f) Every association will arrange for their boxers to have an M.E.3 which must contain a record of the boxer's bouts, name of opponents and showing the result, how won or lost.
(g) Competitors must wear distinguishing colours, such as red or blue sashes round the waist.

A referee shall exclude from competing any boxer who does not wear a cup-protector or who is not clean and properly dressed.

In the event of a boxer's glove or dress becoming undone during boxing, a referee shall stop the contest to have it attended to.

5. Weight Categories (for ABA senior championships)

Light-Fly (up to 48 kgs)
Fly (up to 51 kgs)
Bantam (up to 54 kgs)
Feather (up to 57 kgs)
Light (up to 60 kgs)
Light-Welter (up to 63.5 kgs)
Welter (up to 67 kgs)
Light-Middle (up to 71 kgs)
Middle (up to 75 kgs)
Light-Heavy (up to 81 kgs)
Heavy (over 81 kgs)

6. Weigh-in

Senior competitors to weigh-in on the day of competition stripped or in boxing costume. Juniors to weigh-in in boxing shorts only.

7. Draws and Byes

The draw shall take place after the weigh-in and medical examination. In competitions where there are more than four competitors a sufficient number of byes shall be drawn in the first series to reduce the number of competitors in the second series to 4, 8, 16 or 32.

Competitors drawing a bye in the first series shall be the first to box in the second series. If there is an odd number of byes, the boxer who draws the last bye will compete in the second series against the winner of the first bout in the first series.

Where the number of byes is even, the boxers drawing byes shall box the first bouts in the second series in the order in which they are drawn.

No competitor may receive a bye in the first series and a 'walk-over' in the second series or two consecutive 'walk-overs'. Should such a situation arise a fresh draw shall be made of the other boxers remaining in the series who have not received a bye or a walk-over in the preceding series. The first boxer to be drawn will meet the boxer who has benefited from a bye or walk-over in the preceding series, and the new draw shall then proceed in the normal way.

Table for drawing bouts and byes

No. of Entries	*Bouts*	*Byes*
5	1	3
6	2	2
7	3	1
8	4	–
9	1	7

8. Length of Rounds

The number and duration of rounds for senior competitions and contests shall be as follows:

Competitions

Novice – 3 rounds of 2 minutes each.
Intermediate – 3 rounds of 2 minutes each.
Open – 3 rounds of 3 minutes each.

Contests

Between open class boxers – 3 rounds of 3 minutes each.
Between an open class boxer and an intermediate class boxer – 3 rounds of 3 minutes each.
Between intermediate class boxers – 3 rounds of 3 minutes each.
Between an intermediate class boxer and a novice class boxer – 3 rounds of 2 minutes each.
Between novice class boxers – 3 rounds of 2 minutes each.
In every case, there shall be an interval of one minute between the rounds.

9. The Second

(Seconds must wear white or plain grey trousers, and white vest or a white shirt or white sweater. Training shoes or boxing boots must be worn, track suits and white jackets are permitted.)

Each competitor is entitled to one second and one assistant second who shall be governed by the following rules:

(a) Only the second and assistant second shall mount the ring platform, but only the chief second can enter the ring to service the boxer.
(b) No advice, assistance or encouragement shall be given to a competitor by his second or assistant during the progress of the rounds.
(c) A second may give in for a competitor, and may, when he considers his boxer to be in difficulty, throw the sponge or towel into the ring, except when the referee is in the course of counting.
(d) During the boxing, neither second nor assistant second shall remain on the platform of the ring. The second or assistant second shall, before a round begins, remove from the platform of the ring, seats, towels, buckets, etc.
(e) Any second or assistant second or official encouraging or inciting spectators by words or signs to advise or encourage a boxer during the progress of a round shall not be permitted to continue to act as a second or assistant

second or official at the tournament where the offence is committed.

If a second or his assistant infringes the rules he may be warned or disqualified. His boxer may also be cautioned, warned or disqualified by the referee for offences committed by the second or assistant second.

10. Dressing Rooms

Suitable dressing room accommodation must be provided for competitors at all tournaments. Whenever possible, separate dressing room accommodation should be provided for appointed officials.

11. The 'Break'

When a referee orders the two competitors to 'break' both boxers must step back one pace before recommencing to box. A boxer shall not attempt to strike his opponent on the 'break'. A competitor breaking this rule shall be liable to disqualification.

12. Control of Bouts

All competitions and contests shall be controlled by a referee, three judges and a timekeeper. The referee shall officiate in the ring. When less than three judges are available the referee shall complete a scoring paper. Exhibition bouts shall be controlled by a referee.

Referees shall use a score pad or introduction slip to record the names and colours of the boxers. In all cases when a bout is terminated through injury or other cause, the referee shall record the reason thereon and give it to the official-in-charge.

The timekeeper shall be seated at one side of the ring and the judges at the remaining three sides. The seats shall afford them a satisfactory view of the boxing and shall be apart from the spectators. The referee shall be solely responsible for the control of the bout in accordance with the rules and the three judges shall independently award points.

The referee shall be attired in white when officiating at major tournaments.

13. Decisions and Scoring Papers

(a) At the end of each bout where the stipulated number of rounds has been completed, the referee shall collect and verify the judges' scoring papers and instruct the M.C. to announce the decision stating whether this is unanimous or majority decision and the judges' scores shall be made known to the public. The referee will raise the hand of the winner.

(b) If a bout be terminated in favour of one boxer, the referee shall instruct the M.C. to announce the name of the winner and the reason for the stoppage, then collect the judges' scoring papers.

(c) If both boxers be unable to continue boxing for any reason the bout shall be terminated, the judges' scoring papers collected and the verdict awarded to the boxer who was leading on points when the bout was stopped. In such cases, should the bout be terminated during a round the judges shall award points as though it had been a completed round.

(d) If a boxer be disqualified the referee shall instruct the M.C. to announce the reason for disqualification and the name of the winner. If both boxers be disqualified the referee shall instruct the M.C. to announce the reason/s. The judges' scoring papers shall then be collected by the referee.

(e) When there are only two judges the referee shall first complete his scoring paper and then collect the judges' scoring papers. Should there be less than two judges the referee alone shall officiate; on no account shall he officiate with only one judge.

(f) At the termination of each bout the referee shall hand the scoring papers to the M.C. who will be responsible for giving them to the official-in-charge, unless other arrangements for their disposal have been made by the ABA or other appropriate association.

14. The Referee

1. The referee shall officiate in the ring. He shall be dressed in white trousers, white shirt and light shoes or boots without raised heels.

2. He shall:
   - (a) Check the gloves and dress.
   - (b) Prevent a weak boxer from receiving undue and unnecessary punishment.
   - (c) See that the rules and fair play are strictly observed.
   - (d) Maintain control of the contest at all its stages.
   - (e) At the end of a contest collect and check the papers of the three judges; after checking he shall hand these papers to the adjudicator/O.I.C. or announcer.
     The referee shall not indicate the winner, by raising a boxer's hand or otherwise, until the announcement has been made.

3. (a) He shall use three words of command:
   'Stop' when ordering the boxers to stop boxing.
   'Box' when ordering them to continue.
   'Break' when breaking a clinch, upon which command each boxer shall step back before continuing boxing.
   - (b) When the winner of the bout is announced the referee shall raise the hand of the winning boxer.

4. He shall indicate to a boxer by suitable explanatory signs or gestures any infringement of the rules.

5. *Powers of the referee*

The referee is empowered:

- (a) To terminate a contest at any stage if he considers it too one-sided.
- (b) To terminate a contest at any stage if one of the boxers has received an injury on account of which the referee decides he should not continue.
- (c) To terminate a contest at any stage if he considers the contestants are not in earnest. In such cases he may disqualify one or both contestants.

- (d) To caution a boxer or to stop the boxing during a contest and administer a warning to a boxer against fouls or for any other reason in the interests of fair play, or to ensure compliance with the rules.
- (e) To disqualify a boxer who fails to comply immediately with his orders, or behaves towards him in an offensive or aggressive manner at any time.
- (f) To disqualify a second or assistant who has infringed the rules, and the boxer himself if the second or assistant does not comply with the referee's orders.
- (g) With or without previous warning to disqualify a contestant for committing a foul.
- (h) In the event of a knock-down, to suspend a count, if a boxer deliberately fails to retire to a neutral corner or delays to do so.
- (i) To interpret the rules in so far as they are applicable or relevant to the actual contest or to decide and take action on any circumstance of the contest which is not covered by a rule.

6. (a) If a boxer infringes the rules but does not merit disqualification for such infringement, the referee shall stop the contest and shall issue a warning to the offender. As a preliminary to a warning the referee shall order the boxers to stop. The warning shall be clearly given and in such a way that the boxer understands the reason and the purpose of the warning. The referee shall signal with his hand to each of the judges that a special warning has been given and shall clearly indicate to them the boxer whom he has warned. After giving the warning, the referee shall order the boxers to 'box'.
   If a boxer is given three warnings in a contest, he shall be disqualified.
   - (b) A referee may caution a boxer. A caution is in the nature of advice or admonishment given by the

referee to a boxer to check or prevent undesirable practices or the less serious infringements of the rules. To do so he will not necessarily stop the contest but may avail of a suitable safe opportunity during a round to admonish a boxer for an infringement of the rules.

7. *Medical examination of referees for international tournaments*

A referee, before officiating in any international tournament conducted under these rules shall undergo a medical examination as to his physical fitness for carrying out his duties in the ring. His vision shall be at least six dioptres in each eye.

The wearing of spectacles by a referee during the progress of a bout is not permitted, but contact lens are allowed. For ABA tournaments other than Internationals, referees can wear spectacles or lens.

It will be compulsory for the referee to take part in a meeting before each championship, arranged by the medical jury.

15. Judges

(a) Each judge shall independently judge the merits of the two contestants and shall decide the winner according to the rules.
(b) He shall not speak to a contestant, nor to another judge, nor to anyone else except the referee during the contest, but may, if necessary, at the end of a round, bring to the notice of the referee any incident which he (the referee) may appear not to have noticed, such as the misconduct of a second, loose ropes, etc.
(c) The number of points awarded to each competitor shall be entered by a judge on his scoring paper immediately after the end of each round.
(d) At the end of the bout a judge shall total the points, nominate a winner and sign his scoring paper, and the unanimous or majority verdict shall be made known to the public.

(e) He shall not leave his seat until the verdict has been announced to the public.

16. The Timekeeper

The main duty of the timekeeper is to regulate the number and duration of the rounds and the intervals between rounds.

(a) He shall be seated directly at the ringside.
(b) Five seconds before the commencement of each round he shall clear the ring by ordering 'clear the ring' or 'seconds out'.
(c) He shall commence and end each round by striking the gong or bell.
(d) He shall announce the number of each round immediately prior to commencing it.
(e) He shall take off time for temporary stoppages, or when instructed to do so by the referee.
(f) He shall regulate all periods of time and counts by a watch or clock.
(g) At a 'knock-down' he shall signal to the referee with his hand the passing of the seconds while the referee is counting.
(h) If at the end of a round a boxer is 'down' and the referee is in the course of counting, the gong indicating the end of the round will not be sounded. The gong will be sounded only when the referee gives the command 'box' indicating the continuation of the match.

The intervals between rounds shall be of a full minute's duration.

17. Decisions

Decisions shall be as follows:

(*a*) *Win on points*

At the end of a contest the boxer who has been awarded the decision by a majority of the judges shall be declared the winner. If both boxers are injured, or are knocked out simultaneously, and cannot continue the contest, the judges shall record the points gained by each boxer up to its termination, and the boxer who was leading on points up to the actual end of the contest shall be declared the winner.

(*b*) *Win by retirement*

If a boxer retired voluntarily owing to injury or other cause, or if he fails to resume boxing immediately after the rest between rounds, his opponent shall be declared the winner.

(*c*) *Win by referee stopping contest*

(i) *Outclassed* If a boxer in the opinion of the referee is being outclassed, or is receiving excessive punishment, the bout shall be stopped and his opponent declared the winner.

(ii) *Injury* If a boxer in the opinion of the referee is unfit to continue because of injury or other physical reasons, the bout shall be stopped and his opponent declared the winner.
The right to make this decision rests with the referee, who may consult the doctor. Having consulted the doctor, the referee must follow his advice.
When a referee calls a doctor into the ring to examine a boxer, only these two officials should be present. No seconds should be allowed into the ring, nor on the apron.

(*d*) *Win by disqualification*

If a boxer is disqualified his opponent shall be declared the winner. If both boxers are disqualified the decision shall be announced accordingly.
The decision of the judges or referee, as the case may be, shall be final and without appeal.
The referee shall have power to caution, warn, or disqualify without warning.

(*e*) *Win by knock-out*

If a boxer is 'down' and fails to resume boxing within ten

seconds, his opponent shall be declared the winner by a knock-out.

(*f*) *No contest*

A bout may be terminated by the referee inside the scheduled distance owing to a material happening outside the responsibility of the boxers, or the control of the referee, such as the ring becoming damaged, the failure of the lighting supply, exceptional weather conditions, etc. In such circumstances the bout shall be declared 'no contest' and the official-in-charge shall decide the necessary further action.

18. Awarding of Points

In awarding points the following directives shall be observed:

Directive one. Concerning hits

(a) During each round a judge shall assess the respective scores of each boxer according to the number of hits obtained by each. Each hit to have scoring value must, without being blocked or guarded, land directly with the knuckle part of the closed glove of either hand on any part of the front or sides of the head or body above the belt with force. Swings landing as above described are scoring hits.

(b) The value of hits scored in a rally of in-fighting shall be assessed at the end of such rally and shall be credited to the boxer who has had the better of the exchanges according to the degree of his superiority.

(c) Hits which are struck by a boxer:
  (i) while infringing any of the rules, or
  (ii) with the side, the heel, the inside of the glove or with the open glove other than the knuckle part of the closed glove, or,
  (iii) which land on the arms, or
  (iv) which merely connect, without the weight of the body or shoulder, are not scoring hits.

Directive two. Concerning fouls

(a) During each round a judge shall assess the seriousness of and shall impose a commensurate scoring penalty for any foul witnessed by him irrespective of the fact whether the referee has observed such foul or not.

(b) If the referee warns one of the competitors the judges may award a point to the other competitor. When a judge decides to award a point to a competitor for a foul committed by his opponent for which the latter has been warned by the referee, he shall place a 'W' in the appropriate column against the points of the warned competitor to show that he has done so. If he decides not so to award a point he shall in the appropriate column place the letter 'X' against the points allotted for that round to the warned competitor.

(c) If a judge observes a foul apparently unnoticed by the referee, and imposes an appropriate penalty on the offending competitor, he shall indicate that he has done so by placing in the appropriate column the letter 'J' against the points of the offending competitor, and indicating the reasons why he has done so.

Directive three. Concerning the award of points

(a) Twenty points shall be awarded for each round. No fraction of points may be given. At the end of each round the better (more skilful) boxer shall receive 20 points and his opponent proportionately less. When boxers are equal in merit, each shall receive 20 points.

(b) If at the end of a contest and having marked each round in accordance with directives one and two a judge shall find that the boxers are equal in points he shall award the decision to the boxer:
    (i) who has done most of the leading off or who has shown the better style, or if equal in that respect
    (ii) who has shown the better defence (blocking, parrying, ducking, side-stepping, etc.) by which the opponent's attacks have been made to miss.

A winner must be nominated.

(c) No extra points shall be awarded for a knock-down.

19. Fouls

The competitor who does not obey the instructions of the referee, acts against the boxing rules, boxes in any unsportsmanlike manner, or commits fouls, can at the discretion of the referee be cautioned, warned or disqualified without warning. Only three warnings may be given to the same boxer in one contest. The third warning brings automatic disqualification.

Each boxer is responsible in the same way for his second.

A referee may, without stopping a contest caution a boxer at some safe opportunity.

If he intends to warn a boxer, he shall stop the contest, and will demonstrate the infringement. He will then point to the boxer and to each of the three judges.

The following are fouls:

1. Hitting or holding below the belt, tripping, kicking and butting with foot or knee.
2. Hits or blows with head, shoulder, forearm, elbow, throttling of the opponent, pressing with arm or elbow in opponent's face, pressing the head of the opponent back over the ropes.
3. Hitting with open glove, the inside of the glove, wrist or side of the hand.
4. Hits landing on the back of the opponent, and especially any blow on the back of the neck or head and kidney punch.
5. Pivot blows.
6. Attack whilst holding the ropes or making any unfair use of the ropes.
7. Lying on, wrestling and throwing in the clinch.
8. An attack on an opponent who is down or who is in the act of rising.
9. Holding.
10. Holding and hitting or pulling and hitting.

11. Holding, or locking, of the opponent's arm or head, or pushing an arm underneath the arm of the opponent.
12. Ducking below the belt of the opponent in a manner dangerous to his opponent.
13. Completely passive defence by means of double cover and intentionally falling to avoid a blow.
14. Useless, aggressive, or offensive utterances during the round.
15. Not stepping back when ordered to break.
16. Attempting to strike opponent immediately after the referee has ordered 'break' and before taking a step back.
17. Assaulting or behaving in an aggressive manner towards a referee at any time.

or for any other act the referee may deem improper.

If a referee has any reason to believe that a foul has been committed which he himself has not seen he may consult the judges.

20. Down

1. A boxer is considered 'down':
    - (i) If he touches the floor with any part of his body other than his feet, or
    - (ii) if he hangs helplessly on the ropes, or
    - (iii) if he is outside or partly outside the ropes, or
    - (iv) if following a hard punch he has not fallen and is not lying on the ropes, but is in a semi-conscious state and cannot, in the opinion of the referee, continue the bout.
2. In the case of a knock-down the referee shall immediately begin to count the seconds. If a boxer is down his opponent must at once go to the farther neutral corner. He may only continue against the opponent who is knocked down after the latter has got up and on the command 'box' of the referee. If the opponent should not go to the neutral corner on the command of the referee, the referee shall stop counting until the opponent has done so. The counting shall then be continued where it has been interrupted.

3. When a boxer is 'down' the referee shall count aloud from one to ten with intervals of a second between the numbers, and shall indicate each second with his hand in such a manner that the boxer who has been knocked down may be aware of the count. Before the number 'one' is counted, an interval of one second must have elapsed from the time when the boxer has fallen to the floor, and the time of announcing 'one'.
4. When a boxer is 'down' as the result of a blow the bout shall not be continued until the referee has reached the count of eight, even if the boxer is ready to continue before then. After the referee has said 'ten' the bout ends and shall be decided as a 'knock-out'.
5. In the event of a boxer being 'down' at the end of a round the referee shall continue to count. Should the referee count up to ten, such boxer shall be deemed to have lost the bout by a 'knock-out'. If the boxer is fit to resume boxing before the count of ten is reached, the referee shall immediately use the command 'box'.
6. If a boxer is 'down' as the result of a blow and the bout is continued after the count of eight has been reached, but the boxer falls again without having received a fresh blow, the referee shall continue the counting from the count of eight at which he had stopped.
7. If both boxers go down at the same time, counting will be continued as long as one of them is still down. If both boxers remain down until 'ten' the bout will be stopped and the decision given in accordance with the points awarded up to the time of the knock-down.
8. A boxer who fails to resume boxing immediately after the termination of the rest interval, or who, when knocked down by a blow, fails to resume within ten seconds, shall lose the contest.

21. Procedure after Knock-outs

1. If a boxer is rendered unconscious then only the referee and the doctor summoned should remain in the ring, unless the doctor needs extra help.

2. A boxer who has been knocked out as a result of a head blow in a contest or wherein the referee has stopped the contest due to a boxer having received hard blows to the head, making him defenceless or incapable of continuing, shall be examined by a doctor immediately afterwards and accompanied to his home or suitable accommodation by one of the officials on duty at the event.
3. A boxer who has been knocked out as a result of a head blow during a contest or wherein the referee has stopped the contest due to a boxer having received hard blows to the head, making him defenceless or incapable of continuing shall not be permitted to take part in competitive boxing or sparring for a period of at least 28 days after he has been knocked out.
4. A boxer who has been knocked out as a result of head blows or wherein the referee has stopped the contest due to a boxer having received hard blows to the head, making him defenceless or incapable of continuing twice in a period of 84 days shall not be permitted to take part in competitive boxing or sparring during a period of 84 days from the second knock-out or R.S.C.(H).
5. A boxer who has been knocked out as a result of head blows or wherein the referee has stopped the contest due to a boxer having received hard blows to the head, making him defenceless or incapable of continuing three times consecutively in a period of one year shall not be allowed to take part in competitive boxing or sparring for a period of one year from the third knock-out or R.S.C.(H.).
6. The referee will indicate to the O.I.C. and judges to annotate the score card 'R.S.C.H.' when he has stopped the contest as a result of a boxer being unable to continue as a result of blows to the head.

22. Shaking of Hands

Before beginning and after a bout, boxers shall shake hands in a proper manner, as a sign of a purely sporting and friendly rivalry in accordance with the boxing rules. The shaking of hands takes place before *beginning* the first round and *after* the announcing of the result.

Any further shaking of hands between the rounds is prohibited.

23. Administration of Drugs, etc.

The administration to a boxer of drugs or chemical substances not forming part of the usual diet of a boxer (i.e. doping), is prohibited.

Any boxer or official infringing this prohibition shall be liable to disqualification or suspension by the ABA.

Any boxer who refuses after a bout to undergo any medical test to ascertain if he has committed any breach of this rule shall be liable to disqualification or suspension. The same shall apply to any official encouraging such a refusal.

24. Medical Aptitude

As laid down in appendix 12, page 43, ABA medical scheme.

25. Attendance of Doctor

It is desirable that a qualified doctor of medicine so approved, shall be in attendance throughout the tournament.

26. Failure to Resume Bout

In all bouts, any competitor failing to resume boxing when time is called shall lose the bout.

27. Breach of these Rules

The breaking of any of these rules by a competitor or his second shall render such competitor liable to disqualification.

28. Suspected Foul

If the referee suspects a foul which he himself has not clearly seen, he shall consult the judges and give his decision accordingly.

29.

Match secretaries shall be allowed to see boxers' records as listed on ME3 (Boxers Medical/Record Card), on request.

FURTHER READING

Weight Training for Sport and Fitness, M. Fallon; Kaye & Ward (RP 1979)
Textbook of Work Physiology, Astrand; McGraw and Hill (1970)
Land Conditioning for Competitive Swimming, J. Hogg; E.P. (1972)
Medical Aspects of Sport and Physical Fitness, J. G. P. Williams; Pergamon (1965)
Sports Medicine, J. G. P. Williams; Ed. Arnold (1976)
Readings in Sport Psychology, Edited by H. T. A. Whiting; H. Kimpton (1972)
The Psychology of Learning, R. Berger and A. R. Seabone; Penguin (1966)
Skill in Sport, B. Knapp; Routledge & Kegan Paul (1963)
The Olympic Games – the First 1,000 Years, M. I. Finlay and H. W. Pleket; Chatto and Windus (1976)
Modern Weight Training, A. Murray; Kaye & Ward (RP 1976)
The Psychology of Physical Activity, B. J. Cratty; Lea and Febiger (1966)
Movement Behaviour and Motor Learning, B. J. Cratty; Lea and Febiger (1967)
Weight Training, J. Lear; E.P. (1977)
Principles of Training, D. H. Holding; Penguin (1965)
Motor Learning and Human Performance, R. N. Singer; McMillan (1966)
Human Performance, Filts and Posner; Brooks Cole (1967)

The author, born in Rawtenstall, Lancashire and educated at St Joseph's College, Blackpool obtained a Physical Education diploma from St Mary's College, Twickenham in 1961. From 1962 to 1969 he taught PE and History at St Joseph's College and in 1969 was appointed ABA National Coach for the North and Midlands. In 1973 he became ABA National Coach for the whole of England with full responsibility for England and Young England international programmes and for the implementation of all aspects of the ABA Coaching Scheme.

Printed in Great Britain